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ABSTRACT

The aim of this report is to study the feasibility of establishing university library systems, based on cooperation and compatibility, which are capable of utilizing all advances in educational theory and modern technology without sacrificing any relevant features of the traditional library. The application, present problems and cooperative possibilities of five areas are explored. These are: (1) acquisitions service, (2) cataloguing services, (3) circulation services, (4) document retrieval services, (5) personnel services and (6) equipment. (MM)

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STANDARDIZATION IN CANADIAN UNIVERSITY LIBRARIES -- AN APPROACH AND A PROPOSAL:

A Report of the AUCC Committee on Library Automation

LI 002 981

Association of Universities and Colleges of Canada

1969

STANDARDIZATION IN CANADIAN UNIVERSITY LIBRARIES

AN APPROACH AND A PROPOSAL

Abstract of the report.

Several reports published during the last year (the Downs Report, the Mac
Report) underscored the urgency of the problems involved and the immense expenditures requi
rationalized library resources. More important, each report noted many possible areas for
out that all institutions, whether rich or poor, faced similar problems, and would in fact
co-operative development.

This report is an attempt to initiate long-range action. It has been wri
most of the facts involved and are ready to act.

The term automation, in this report, refers to all machines and systems w
processing, storing, retrieving, distributing and/or circulating information in university

Each chapter of the report examines the definition of the services, the p
present problems and the co-operative possibilities. The problems evoked are the following

1. Acquisitions services.
2. Cataloguing services.
3. Circulation services.
4. Document retrieval services.
5. Personnel services.
6. Equipment.

Meaning of cost versus services.

The basis of this proposal is the necessity for the rationalization of ou
controlling costs, not for itself, but to provide the best trade-off between costs and serv
Costs and services needs on the part of the user are both rising. We must have maximum uti
spent through a more appropriate use of data. Co-operation among libraries is the best met
resources most effectively and to provide necessary services not possible without co-operat

If we do nothing, those areas of most concern, redundant effort and costs
co-ordinated effort towards rationalizing resources and services, will continue and perhaps
to remedy. It is already an area of concern to all thoughtful university administrators.

N IN CANADIAN UNIVERSITY LIBRARIES

PROACH AND A PROPOSAL

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ose areas of most concern, redundant effort and costs, the absence of any
ing resources and services, will continue and perhaps become more difficult
oncern to all thoughtful university administrators.

Conclusions.

1. Although there is a great deal of activity in Canadian University li similar areas, and with a few exceptions, nor clearly defined progra

2. There is some degree of compatibility among libraries in equipment u and in personnel support requirements.

3. There emerges from the review a widespread agreement about areas fo

4. There is a desire for standards to relieve the present confusion in

5. There exists both the means and desire to bring order and to pursue

Recommendations.

1. A common catalyst and co-ordinator to provide guidance in planning, and review in monitoring any systems developed must be provided.

2. Special funding for the operation must be obtained through federal/ through direct university financing, through service charged to the of all the above.

   An agency must be established in the National Library with authorit

   a) Establish priorities for automation projects after appropr

   b) make special grants to enable project implementation.

   c) make grants to users for services rendered.

   d) the proposed agency must provide programme and personnel interested institutions.

   e) Continuous education programmes for personnel must also be

3. Attempts must be made to interest commercial software producers in This would speed a solution.

deal of activity in Canadian University libraries, much of it is in
few exceptions, nor clearly defined programme is being followed.

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requirements.

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any systems developed must be provided.

peration must be obtained through federal/provincial financing,
financing, through service charged to the user, or a combination

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ants to enable project implementation.

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gency must provide programme and personnel sharing, loaning both to
itutions.

ation programmes for personnel must also be necessary.

interest commercial software producers in specialized library problems.
ion.

4. A national communications network, co-ordinated in accord with the ab
on the existing state of development is needed. This would enable u
our resources at minimum costs. Such an arrangement seems to involv

These suggestions take advantage of the compatibility already present and will aid in the e
service of undisputed excellence for the welfare of Canadians.

ns network, co-ordinated in accord with the above elements and imposed
f development is needed. This would enable us to make maximum use of
m costs. Such an arrangement seems to involve regional orientation.

tibility already present and will aid in the establishment of an intellectual
fare of Canadians.

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PREFACE

Some months ago, a group of "working" librarians was asked, b
automation in Canadian university libraries in order to formulate proposals
development and implementation of a national scheme based on mutual co-opera

The basis of this proposal is the necessity for rationalizati
means controlling costs but at the same time utilizing the funds available t
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This modest report is an attempt to initiate long-range actio
definitive, nor does it offer new insights nor conclusions. It labours the
been written for those who know most of the facts involved and are ready to
depend on timing, we believe the time is now!

PREFACE

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t of the facts involved and are ready to act. Successful ventures often
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NOTE

Most figures for this study were drawn from three sources:

1. Analysis of automation projects in Canada based on a questionnaire provided by the Committee and compiled by the National Library.[1]
2. R.H. Blackburn's analysis of the Downs Report.[2]
3. Latest statistics provided by CACUL.[3]

The breakdown of these figures, which reflect total library budgets, excep indicated otherwise, into representative costs for departments, proceeded along the perce of Blackburn's analysis of the Downs Report. Thus, the figures quoted will not be exact, each library involved, but indicate a representative range from which certain general con Figures are rounded for clarity and emphasis.

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[1] Reproduced in Appendix F.

[2] Blackburn, Robert H.: Financial Implications of the Downs Report on Canadian Academic an AUCC, 1969.

[3] Reproduced in Appendix B.

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INTRODUCTION

AIM

The aim was to study the feasibility of establishing uni
co-operation and compatibility, which are capable of utilizing all advan
modern technology without sacrificing any relevant features of the tradi
that the university library will become a more effective resource centre
recreational needs of the nation.

The term automation, as used in this paper, refers to al
used for producing, processing, storing, retrieving, distributing and/or
university libraries.

METHODOLOGY

To fulfill this aim, the Library Automation Committee of

1. distributed a questionnaire to determine
   projects so that areas of compatibility
   co-operation might be assessed.
2. established terms of reference for evalu
   through the questionnaire.
3. established a task force to evaluate the

This committee then decided to study the following areas

1. Acquisitions services.
2. Cataloguing services.
3. Circulation services.
4. Document Retrieval services.
5. Personnel services.
6. Equipment.

What follows is an analysis of the data obtained in each

INTRODUCTION

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1. Acquisitions services.
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4. Document Retrieval services.
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ws is an analysis of the data obtained in each of these areas.

MEANING OF COST VERSUS SERVICES

The rationalization of resources means controlling costs, not the best trade-off between costs and services rendered the user. Costs and service user are both rising. Co-operation among libraries is the best method both to use s effectively and to provide necessary services not possible without co-operation.

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and services rendered the user. Costs and service needs on the part of the
tion among libraries is the best method both to use scarce resources most
ssary services not possible without co-operation.

ACQUISITIONS SERVICES

Acquisitions services will be here defined as the process through w
so that it will better serve the university's academic programme.

Principal operations involve:

1. material selection, both old and new. For the purpos
report, the problems inherent in purchasing out-of-pr
are not considered. OP material should be discussed
problem, since the method of selection, the amount pu
and the need varies widely from library to library, a
standardized in any one way.
2. creation and validation of an order request.
3. placing the order
4. assigning funds to the order
5. processing the item when received, so that it can be
on for further bibliographic processing.

APPLICATIONS

1. 14 libraries are currently involved with planning fo
an acquisitions automation system.
2. The national average budget expense for acquisition i
is 40.01 per cent. This represents a cost of from $1
$2,600,000 for large libraries; $90,000 to $620,000 f
libraries. There is a variance from a low of 18.3 pe
high of 56.5 per cent, though most libraries are clos
national average. The total amount spent by 29 libra
1968-69 was $18,452,921. (Appendix B).

ACQUISITIONS SERVICES

be here defined as the process through which a collection is developed
s academic programme.

ve:

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in any one way.

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order

unds to the order

he item when received, so that it can be passed
her bibliographic processing.

s are currently involved with planning for or operating
ions automation system.

l average budget expense for acquisition in fiscal 1969-70
r cent. This represents a cost of from $1,300,000 to
for large libraries; $90,000 to $620,000 for small
There is a variance from a low of 18.3 per cent to a
5 per cent, though most libraries are close to the
erage. The total amount spent by 29 libraries during
$18,452,921. (Appendix B).

3. The number of personnel involved varies from 1/12 total library staff. Personnel numbers seem to ra people in the department. (Appendix B).

PRESENT PROBLEMS

1. There exists a wide variation from institution to the role Acquisitions plays in the development of system for the library, both in practice and in pl

   This can be illustrated by the variations in selec Some libraries depend wholly on non-library staff ordering, whereas other universities generate the requests from subject specialists within the libra

   There are also variations in purchasing practices, depend wholly on jobbers, others order direct, st on mammoth blanket order programmes. Each defends on the basis of service and cost reduction.

   There are variations also in the control and accou Some university libraries have no control of funds number of accurate records, others control all fu keep the official records.

   The overall value of this operation in relation t is reflected in the variety of priorities placed planning between university libraries.

2. The large number of libraries concurrently workin programmes, many of which are similar, demonstrat of effort. Private institutions (Dalhousie), pub large institutions (Alberta), and small instituti engaged in differing mechanized acquisitions prog

r of personnel involved varies from 1/12 to 1/4 of the
rary staff. Personnel numbers seem to range from 4 to 120
the department. (Appendix B).

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whereas other universities generate the majority of ordering
from subject specialists within the library.

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sis of service and cost reduction.

variations also in the control and accounting of funds.
ersity libraries have no control of funds and keep a modest
accurate records, others control all fund expenditures and
official records.

ll value of this operation in relation to the other services
ted in the variety of priorities placed on acquisitions services
between university libraries.

number of libraries concurrently working on mechanized acquisition
s, many of which are similar, demonstrates wasteful duplication
. Private institutions (Dalhousie), public institutions (UBC),
titutions (Alberta), and small institutions (Mt. Allison) are all
in differing mechanized acquisitions programmes.

3. Increasing demands on collections leadi financial and personnel resources.[1]

4. Libraries and institutions of similar s are purchasing the same books, althoug may not be exploited enough to justify

---

[1] See Downs, p. 208 for increase in volume from 1961-67, e.g. average numbe Acadia University is 4,428, volumes added 1966-67: 12,000 (p. 209). From t growth in acquisitions can be inferred, as well as staff problems involved

g demands on collections leading to increased acquisitions have strained
and personnel resources.[1]

s and institutions of similar size, in the same geographical area,
hasing the same books, although in many cases, individual collections
be exploited enough to justify this.

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rom 1961-67, e.g. average number volumes added 1961-66 for
966-67: 12,000 (p. 209). From these two tables the explosive
well as staff problems involved in this increase.

CO-OPERATIVE POSSIBILITIES

1. Adoption of standardized software based on successful operating systems supplied from a technical services center within the National Library, along with "borrowed" programming personnel during installation period, to facilitate on site changes, or

2. Development of a commercial service based on standardized software, which would provide the same result as the above, with less cost and less disruption in the library. Many jobbers have such programmes in full working state.

3. Adoption of a standard book number by Canadian booksellers which would expedite the ordering process, and minimize bibliographic typing and errors.

4. A review of acquisitions policies, leading to the establishment of specialized collections on a national basis, with specific responsibilities beyond their immediate community of users.

   It is no longer possible for a library to have a copy of everything. This implies a rationalization of resources and services so that the burden is shared by all libraries, therefore, duplication should be minimized wherever possible. The mechanism for satisfying this need not be expensive. A number of loan request services have already been introduced. For example, inter-library truck or postal delivery. Urgent requests are handled by telephone or telex. Where truck or postal delivery telephone or telex services do not fulfill the needs of a scholar, consideration should be given to sending him to the library with the appropriate special collection is housed.

5. Establishment of a communications network which would provide a centralized clearing house. This would help expedite any scheme developed above.

II.

CATALOGUING S

Cataloguing services will be here defined as so they may be available to the user. They include:

1. describing the item
2. classifying the item
3. assigning subject headings
4. preparing item for use
5. preparing all additional services for the

APPLICATIONS

1. 10 libraries are currently involved in pla cataloguing system. (Appendix A.)

2. Cataloguing services seem to involve from part-time equivalents amounting to 1/3 of It is difficult to provide absolute figure in the services they included in their re cataloguing services costs as much as $1,0 library can spend as little as $30,000 yea

PRESENT PROBLEMS

1. There is a considerable backlog of materia

2. The Library of Congress proof distributio our cataloguing is based, though much impr local library needs. In addition coverage

CATALOGUING SERVICES

loguing services will be here defined as those services which are used to prepare all items o the user. They include:

describing the item
classifying the item
assigning subject headings
preparing item for use
preparing all additional services for the user which result from the above

10 libraries are currently involved in planning or operating an automated cataloguing system. (Appendix A.)

Cataloguing services seem to involve from 10 to 200 persons in full or part-time equivalents amounting to 1/3 of any given personnel budget. It is difficult to provide absolute figures since departments vary in the services they included in their report. For large libraries cataloguing services costs as much as $1,000,000 yearly, while a small library can spend as little as $30,000 yearly. (Appendix B.)

There is a considerable backlog of material to be catalogued.

The Library of Congress proof distribution system, on which much of our cataloguing is based, though much improved, continues to lag behind local library needs. In addition coverage is inadequate.

3. The inadequate coverage of the Library of Congress cataloguing programme results in:
    - a) many libraries cataloguing the same books at the same time.
    - b) duplication in constructing classification schemes and cataloguing Canadiana material.
4. The lack of understanding of users needs and of the cataloguing record's purpose lends to needless proliferation of techniques and standards in cataloguing details because of local demands which are not always justified.
5. Another problem is that of subject headings. They are neither correct nor relevant. The existing approach is not working. Interdisciplinary complications and the bifurcation of subject areas is placing a great strain on present subject analysis.
6. Excessive reliance on others to get the job done.
7. There are technical problems which must be overcome. For example:
    - a) MARC II in a format IBM equipment (predominant in Canada) can handle.
    - b) Character incompatibility and the necessity for upper and lower case printouts.
    - c) The necessity for file accession by record number or data patterns.

SEE ALSO APPENDIX G.

CO-OPERATIVE POSSIBILITIES

1. Establishment of cataloguing standards for machine systems. This will require some adjustments by individual libraries. However, these should be kept to a minimum, particularly since a catalogue card should be seen as a location device with only certain kinds and amounts of bibliographic information.

2. A nation wide service, located in the National Library, with a machine readable catalogue to which participating libraries would give as well as receive information, would eliminate such duplication and expense through shared cataloguing (similar to the system already in use in the USA).

3. a) A possible approach to shared cataloguing could be through assigned subject specialties (e.g. Oceanography at Dalhousie, Medieval History at UBC) which would make an individual library responsible for cataloguing all books required by the national system in its subject specialty. This cataloguing, in machine readable form, would be available to the remaining members of the system. This scheme could be developed as a cojunct to the rationalization of resources.
   b) The central clearing house could develop the software to allow MARC II conversion. This could then be used for cataloguing purposes, and could also be used to form the nucleus of an outstanding national documents location and retrieval device.
   c) The central clearing house will also develop techniques which will allow for new approaches for resolving subject heading problems.

4. The above possibilities require an effective communications network.

III. CIRCULATION SERVICES

Circulation services will be here defined as those services organization relevant to prompt delivery of items to borrowers, and all auxiliary of items on loan. Principal operations are:

1. charging and discharging
2. fine accounts and other charges
3. searching for missing collections items
4. stack maintenance and shelving

APPLICATIONS

1. 15 libraries are currently involved in planning or op an automated circulation system. (Appendix A.)

2. 50 per cent of the systems now in use employ IBM equi input and output, with the remainder divided among se companies. (Appendix F).

3. If Circulation is considered as representing 14 per c budget of a library, large libraries spend from $130, yearly, while small libraries spend from $5,000 to $6 The estimated number of personnel used for circulatic part-time to 60 full-time employees.

4. Only two libraries, UBC and Guelph, are developing pr analysis of machine readable statistics they have acc collection use. Data resulting from these projects c the buying and borrowing habits within universities.

CIRCULATION SERVICES

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sis of machine readable statistics they have accumulated on
ction use. Data resulting from these projects could change
uying and borrowing habits within universities.

PRESENT PROBLEMS

1. Equipment in use has been adapted from purposes. It is, therefore, not as fu
2. Circulation is most often considered i operations, which reduces its effectiv valuable statistical patterns of use t many circulation systems cannot supply in a manner compatible with any propos
3. Circulation is more restricted by the and function, than any other library o
4. Many of the present circulation system and demeaning by borrowers. Any syste problem.
5. Several libraries have embarked on cir automation project for reasons, and at which may not be justified.

CO-OPERATIVE POSSIBILITIES

1. Circulation systems must be designed s borrower is minimized.
2. Since circulation systems are designed all be compatible with any proposed na book status information.

1. Equipment in use has been adapted from equipment designed for other purposes. It is, therefore, not as functional as might be.

2. Circulation is most often considered in isolation from other library operations, which reduces its effectiveness, since it can contribute valuable statistical patterns of use to administrators. At present, many circulation systems cannot supply current book status information in a manner compatible with any proposed national communications network.

3. Circulation is more restricted by the environment, physical location, and function, than any other library operation.

4. Many of the present circulation systems are felt to be too burdensome and demeaning by borrowers. Any systems developed must overcome this problem.

5. Several libraries have embarked on circulation as their first principal automation project for reasons, and at a time within their development, which may not be justified.

1. Circulation systems must be designed so that effort on the part of the borrower is minimized.

2. Since circulation systems are designed to do similar things, they should all be compatible with any proposed national network and should provide it with book status information.

3. Statistical and user analysis can provide valuable feed-back information on the performance of library networks; it can also help acquisitions and circulation policies.
4. Circulation is well defined, from a systems point of view, as inventory control, thus shared systems programming and techniques would reduce wasteful duplication.
5. A national clearing house of personnel and software is needed. This too might best be the responsibility of the National Library.
6. It is obvious once again that the above requires an effective national communications network.

IV. DOCUMENT RETRIEVA

Document retrieval will be defined here as the allow recovery of material corresponding to the terms selected by the made clear that this is not a new service. Libraries have always bee What has changed is the potential of the new machines for revamping t

Information retrieval is not considered in this which must be solved, the unpredictable magnitude of the costs which agreement as to the role it should play, all tend to eliminate everyt time. Although the dream of every user is a highly sophisticated inf to his every information need on demand, the state of the art in Nort work is needed before serious committment on the part of libraries ca is both practicable and promising, particularly since it has been ada projects.

APPLICATIONS

1. A small group of libraries are engaged is a great disparity between systems in specialized nature of the projects unde
2. UNB estimates a figure of $12.00 per do costs) in its system. Laval's MIRACODE preparation and processing, exclusive o

PRESENT PROBLEMS

1. The intellectual problems which must be clearly defined or understood.
2. There is a lack of qualified subject an any system, designed or implemented.

DOCUMENT RETRIEVAL SERVICES

t retrieval will be defined here as the application of an indexing scheme to
rresponding to the terms selected by the documents searcher. It should be
new service. Libraries have always been involved in documents retrieval.
tial of the new machines for revamping traditional techniques for retrieval.

tion retrieval is not considered in this report. The intellectual problems
redictable magnitude of the costs which must be incurred, and the lack of
hould play, all tend to eliminate everything but passing interest at this
every user is a highly sophisticated information system which will respond
on demand, the state of the art in North America is such that much development
committment on the part of libraries can result. Document retrieval, though,
sing, particularly since it has been adapted successfully to specialized

A small group of libraries are engaged in document retrieval work, but there is a great disparity between systems in use. This occurred due to the specialized nature of the projects undertaken. (Appendix A.)

UNB estimates a figure of $12.00 per document (for processing and programming costs) in its system. Laval's MIRACODE costs $1.30 per article for preparation and processing, exclusive of maintenance and depreciation costs.

The intellectual problems which must be solved have not, as yet, been clearly defined or understood.

There is a lack of qualified subject and indexing specialists to support any system, designed or implemented.

3. There is a lack of:
   a) a uniform retrieval point of view
   b) understanding of many of the interdisciplinary complications arising from interdependence of knowledge and mission-oriented approaches which has made it difficult to structure new approaches.
   c) adequate coverage for languages other than English.
   d) understanding of the processes of distribution, dissemination and storage of messages in great quantities for easy access.

4. University libraries, as a whole, are not developing or adopting approaches to such reference services.

5. The size of the files involved, particularly retrospective files, is so large that costs are most prohibitive.

6. The cost of documents retrieval, for most libraries, is higher than the value of having this service at the present time.

CO-OPERATIVE POSSIBILITIES

1. A large number of intellectual problems must be solved before co-operative action on documents retrieval is possible.

2. A method of developing, assessing and sharing costs must be found.

3. A national committee should be established to monitor progress in this field until the technical processes involved are sufficiently advanced to warrant general action.

V. PERSONNEL SERVICES

In this report, Personnel covers both library staf
Consideration of this area is complicated, in the case of library staff,
numbers employed are given as totals only. A division of personnel by li
insights than the present scheme.

The report on Computer center Personnel is more det
different standards in reporting, including different titles for the same
show library and computer center resources, while Appendix C and Appendix

PRESENT CONSIDERATIONS

1. The national average for budgeting salaries
   36.1 per cent and a high of 76.8 per cent,
   the national average. Since the financial
   below $500,000, and in six cases exceeds $
   are important. Total salaries for 29 unive

2. Salaries are also rising sharply, and can b
   so if competent professionals are to be att
   designers, analysts, and planners will also
   complement existing needs.

3. There is a rising tide of user service expe
   longer content to have the library a passiv
   dynamic service or fail in its purpose. Th
   efficient co-operation could be applied to
   library service efficiency.

4. Computer center resources are considerably
   systems staff resources, and although libra
   the computer center skill pool with ease,
   a dialogue exists between computer centers
   is clearly one of the opposite. (Appendix

PERSONNEL SERVICES

t, Personnel covers both library staff and the staff of the computer center. icated, in the case of library staff, by the fact that salary cost and s only. A division of personnel by library duty would have provided more

Computer center Personnel is more detailed, but firm conclusions are blocked by ncluding different titles for the same position. Appendix A and Appendix D sources, while Appendix C and Appendix E give further details.

ational average for budgeting salaries is 54 per cent, with a low of per cent and a high of 76.8 per cent, most libraries being close to ational average. Since the financial range involved rarely falls $500,000, and in six cases exceeds $1,000,000, salary expenditures mportant. Total salaries for 29 universities were $23,665,409.

ies are also rising sharply, and can be expected to continue to do competent professionals are to be attracted to the field. Systems gners, analysts, and planners will also be in heavy demand to lement existing needs.

is a rising tide of user service expectation -- the user is no r content to have the library a passive entity -- it must render mic service or fail in its purpose. Thus the money saved in cient co-operatic could be applied to user services for greater ary service efficiency.

uter center resources are considerably greater than library ems staff resources, and although libraries are able to call upon computer center skill pool with ease, there is no indication that alogue exists between computer centers and libraries. The impression learly one of the opposite. (Appendix D.)

5. Where computer center staff, evidently a rare an
commodity, is detailed in a number of universiti
development and support for the same system, thi
effort is extremely wasteful.

CO-OPERATIVE POSSIBILITIES

1. The clearing house proposed above in Sections I
enable scarce staff pooling of existing personne
responsible for training and recruiting potentia
for participating libraries.

2. Most library staffs are expected to continue to
Only pooling of talent can prevent disastrous pe
shortages. (Appendix C.)

3. There is a sufficiency of human resources availa
the central systems service center to be staffed
to national needs. (Appendix E.) For the same s
supplied (to libraries), by each University cent
are not sufficient. Unless human resources are
we face cannot be solved.

4. Co-operative projects among libraries will lesse
with general service increases in all sectors of
be more acute in the light of the predicted dear
staff.

mputer center staff, evidently a rare and expensive
y, is detailed in a number of universities to concurrent
ent and support for the same system, this duplication of
s extremely wasteful.

ring house proposed above in Sections I, II, and III would
carce staff pooling of existing personnel, and would be
ble for training and recruiting potential personnel
icipating libraries.

rary staffs are expected to continue to increase.
ling of talent can prevent disastrous personnel
s. (Appendix C.)

a sufficiency of human resources available to enable
ral systems service center to be staffed at a level adequate
nal needs. (Appendix E.) For the same services to be
(to libraries), by each University center, the human resources
sufficient. Unless human resources are pooled, the problems
cannot be solved.

ative projects among libraries will lessen the strain concomitant
eral service increases in all sectors of the library, which will
acute in the light of the predicted dearth of professional

VI.

EQUIPMENT SERVICES

Equipment services will be defined as the computers used
Input/Output devices.

PRESENT CONSIDERATIONS

1. A large majority (at least 60%) of the universiti
use IBM/360 computers (appendix A), indicative o

2. With few exceptions, programming languages used
Software packaging, however, would require recon
multiple programming appraoches taken to the sol

3. Since most libraries in Canada do not own the co
process their programmes, duplication of effort
the library, but also the university community d

CO-OPERATIVE POSSIBILITIES

1. Hardware and software incompatibility could be r
of hardware or software systems to satisfy the o
systems. This would facilitate programme exchan

EQUIPMENT SERVICES

will be defined as the computers used by each university, and their attendant

ority (at least 60%) of the universities reporting to the committee
computers (appendix A), indicative of a large equipment compatibility.

ceptions, programming languages used will allow common use.
ckaging, however, would require reconcilation of the
ogramming appraoches taken to the solution of identical problems.

libraries in Canada do not own the computing facilities which
ir programmes, duplication of effort in this area involves not only
, but also the university community dependent upon computer services.

d software incompatibility could be reduced through the development
or software systems to satisfy the objectives of co-operative
This would facilitate programme exchanges.

SUMMARY

If we do nothing, those areas of most concern, redundant effor of any co-ordinated effort towards rationalizing resources and services, will contin become more difficult to remedy. It is already an area of concern to all thoughtful

CONCLUSIONS

1. Although there is a great deal of activity in Canadian Libraries, much of it is in similar areas, and with a no clearly defined programme is being followed.
2. There is some degree of compatibility among libraries used, in programming languages, and in personnel suppo
3. There emerges from the review a widespread agreement a mechanization developments.
4. There is a desire for standards to relieve the present evaluation and planning.
5. There exists both the means and desire to bring order co-operative activity.

SUMMARY

ing, those areas of most concern, redundant effort and costs, the absence
rationalizing resources and services, will continue and perhaps
t is already an area of concern to all thoughtful university administrators.

ugh there is a great deal of activity in Canadian University
ries, much of it is in similar areas, and with a few exceptions,
learly defined programme is being followed.

e is some degree of compatibility among libraries in equipment
, in programming languages, and in personnel support requirements.

e emerges from the review a widespread agreement about areas for
anization developments.

e is a desire for standards to relieve the present confusion in
uation and planning.

e exists both the means and desire to bring order and to pursue
perative activity.

RECOMMENDATIONS

1. A common catalyst and co-ordinator to provide guidance in planning, help in implementation, and review in monitoring any systems developed must be provided.

2. Special funding for the operation must be obtained through federal/provincial financing, through direct university financing, through service charged to the user, or a combination of all of the above. An agency must be established in the National Library with authority to:

    a) Establish priorities for automation projects, after appropriate study and research review.

    b) make special grants to enable project implementation.

    c) make grants to users for services rendered.

    d) provide programme and personnel for interested institutions, on a sharing basis.

    e) provide continuous educational programmes for personnel.

   The AUCC must appoint a working group in consultation with CACUL to review any projects proposed, and to act as necessary as they see fit in other matters.

3. Attempts must be made to interest commercial software producers in specialized library problems. This would speed a solution.

4. A national communications network, co-ordinated in accord with the above elements and imposed on the existing state of development is needed. This would enable us to make maximum use of our resources at minimum costs. Such an arrangement seems to involve regional orientation.

   These suggestions take advantage of the compatibility already present and will aid in the establishment of an intellectual service of undisputed excellence for the welfare of Canadians.

APPENDIX A : APPLICATIONS

SUMMARY OF APPLICATIONS

	ALBERTA	U.B.C.	BROCK	CALGARY	DALHOUSIE	GUELPH	LAKEHEAD	LAVAL	MANITOBA	MCMASTER	MONTREAL	MT. ALLISON	UNB	OTTAWA	QUEEN'S
ACQUISITIONS	X	X			X	X	X		X	X		X		X	
CATALOGUING	X	PR S/L NC				X		P/X		X	X				
CIRCULATION	X	X	X		X	X		X	X	X	X				
GOVERNMENT DOCUMENTS			X			X				X					X
SERIALS		X	X	X	X	X		X							
LISTS	B	CR AQU				X			C DE						
INDEXING						X		X					X		
SUBJECT HEADINGS					X			X							
SID/IR								X					X		
GEN. PUR. FILE		X													

In addition, UBC uses its computer to help with user studie

programme to cover equipment and personnel. LAVAL uses the

a, aqu: acquisitions	hold: holdings	p: pamphl
b: bibliographic	inv: inventory	p/f or pr
c: catalogue	nc: new cataloguing	r,res: re
cr: course reading list	or,r: reserve	s/l: shel
de: desiderata	o/p: out of print	

Priorities incompleted projects and planned projects can be

SUMMARY OF APPLICATIONS

LAKEHEAD	LAVAL	MANITOBA	MCMASTER	MONTREAL	MT. ALLISON	UNB	OTTAWA	QUEEN'S	SASKATCHEWAN	SHERBROOKE	SIMON FRASER	S.G. WILLIAMS	TORONTO	VICTORIA	WATERLOO	WESTERN ONT.	WINDSOR	YORK
X		X	X		X		X		X		X					X	X	X
	P/X		X	X					X		X/MAPS		X				X	X/P/R
	X	X	X	X					X		X		X	X		X		X
			X					X									X	
	X										X	X	X		X	X	X	
		C DE									INV O/P			HOLD S/L RES	R			R/A
	X					X												X
	X									X								
	X					X												X

computer to help with user studies, and Calgary is planning an accounts ent and personnel. LAVAL uses the computer to aid its statutes programme.

hold: holdings
inv: inventory
nc: new cataloguing
or,r: reserve
o/p: out of print

p: pamphlets
p/f or pr: phonograph records
r,res: reserve
s/l: shelflist

ojects and planned projects can be reviewed by consulting Appendix F

APPENDIX B : LIBRARY STAFF AND SALARIES

1969/70 SALARY RANKINGS

AVERAGE SALARY		MEDIAN SALARY	
Lakehead	11,558	Lakehead	10,745
St. Mary's	11,300	Regina	10,300
Regina	10,550	St. Mary's	10,000
Calgary	10,405	Sir George Williams	10,003
Victoria	10,323	Trent	9,900
Simon Fraser	10,183	Alberta	9,650
Alberta	10,157	British Columbia	9,600
York	10,047	Victoria	9,450
Toronto	10,035	Calgary	9,435
British Columbia	10,027	Guelph	9,200
Windsor	10,020	Saskatoon	9,200
Sir George Williams	9,995	York	9,200
Saskatoon	9,977	Windsor	9,175
Trent	9,937	McGill	9,100
Carleton	9,922	Waterloo Lutheran	9,050
Manitoba	9,845	Simon Fraser	9,025
Laurentian	9,666	Brock	9,000
Sherbrooke	9,652	Laurentian	9,000
Laval	9,641	Toronto	9,000
McMaster	9,527	Victoria(Toronto)	9,000
Mount Allison	9,500	Manitoba	8,800
Brock	9,362	Laval	8,615
Western Ontario	9,151	Ottawa	8,592
Waterloo Lutheran	9,111	McMaster	8,400
Memorial	9,093	Memorial	8,400
Victoria (Toronto)	9,053	Sherbrooke	8,400
Guelph	8,816	Western Ontario	8,400
Montreal	8,762	Montreal	8,320
Dalhousie	8,702	Carleton	8,300
Ottawa	8,662	Dalhousie	8,000
McGill	8,600	Acadia	7,700
Acadia	8,285	Mount Allison	7,600

Expenditure per Student by Library, 1969/70 (Budget)	200	230	224	217
Expenditure on Library as % of Univ. Expenditure, 1968/69	7.8 (8.1)	7.1 (8.2)	8.5 (7.5)	7.5 (8.1)
Budget for Library as % of Univ. Budget, 1969/70	7.6	7.0	8.0	7.3
Percentage of 1968/69 Expenditures for Salaries	50.2 (46.2)	52.4 (50.7)	47.3 (49.7)	51.3 (48.8)
Percentage of 1969/70 Budgets for Salaries	52.4	55.5	50.3	54.0
Percentage of 1968/69 Expenditures for Acquisitions and Binding	41.4 (45.3)	38.8 (41.6)	45.3 (44.2)	40.1 (43.3)
Percentage of 1969/70 Budget for Acquisitions and Binding	39.7	35.8	41.3	37.6
Students (1969/60)Projections) per Library Staff Member	56 (57)	48 (48)	48 (57)	51 (52)
Students (1969/70 Projections) per Professional Librarian	252 (228)	207 (182)	201 (190)	221 (198)
Professional Staff as percentage of Total Staff	22.3 (25.0)	23.3 (26.2)	24.1 (27.5)	23.1 (25.9)

REGIONAL AND NATIONAL AVERAGES FROM CACUL SURVEY

(Comparative figures from previous year in parentheses)

	Western Provinces	Central Provinces	Atlantic Provinces	Canada
Average Professional Salary	10, 139 (9, 495)	9, 417 (8, 784)	9, 011 (8, 373)	9, 619 (8, 968)
Beginning Professional Salary	7, 387 (6, 850)	7, 234 (6, 878)	6, 800 (6, 660)	7, 217 (6, 8[illegible]
Expenditure per Student by University, 1968/69	2, 445 (2, 407)	3, 199 (2, 537)	2, 469 (1, 817)	2, 8[illegible] (2, 391)
Expenditure per Student by University, 1969/70 (Budget)	2, 635	3, 297	2, 797	2, 952
Expenditure per Student by Library, 1968/69	191 (196)	225 (213)	209 (135)	212 (197)
Expenditure per Student by Library, 1969/70 (Budget)	200	230	224	217
Expenditure on Library as % of Univ. Expenditure, 1968/69	7.8 (8.1)	7.1 (8.2)	8.5 (7.5)	7.5 (8.1)
Budget for Library as % of Univ. Budget, 1969/70	7.6	7.0	8.0	7.3
Percentage of 1968/69 Expenditures for Salaries	50.2 (46.2)	52.4 (50.7)	47.3 (49.7)	51.3 (48.8)

EXPENDITURES, 19

INSTITUTION	SALARIES	ACQUISITIONS and BINDING	SUPPLIES and EQUIPMENT
BRITISH COLUMBIA	1,949.238 (57.0)	1,109,920 (32.5)	179,266 (5.2)
SIMON FRASER	929,073 (51.2)	663,516 (36.6)	177,254 (9.8)
VICTORIA	696,495 (41.7)	890,460 (53.4)	46,066 (2.8)
ALBERTA	1,638,871 (49.1)	1,466,419 (44.0)	107,008 (3.2)
CALGARY	643,751 (42.5)	783,561 (51.7)	61,002 (4.0)
REGINA	418,240 (47.7)	402,893 (46.0)	38,685 (4.4)
SASKATOON	692,042 (51.3)	542,812 (40.3)	53,419 (4.0)
MANITOBA	795,344 (53.2)	540,281 (36.1)	159,604 (10.7)
CARLETON	794,926 (45.6)	780,000 (44.8)	87,581 (5.0)
GUELPH	662,170 (41.7)	799,267 (50.3)	122,461 (7.7)
McMASTER	784,573 (41.8)	948,494 (50.6)	101,612 (5.4)
OTTAWA	650,125 (46.0)	664,400 (47.0)	58,775 (4.1)
QUEEN'S			
TORONTO	3,357,531 (57.0)	1,913,448 (32.5)	580,003 (9.8)
WATERLOO			
WESTERN ONTARIO	1,243,487 (48.8)	[illegible]6,495 (45.8)	129,077 (5.1)
WINDSOR	585,641 (37.0)	[illegible]94,039 (56.5)	42,183 (2.7)
YORK			
LAVAL	1,538,000 (64.2)	620,000 (25.9)	91,000 (3.8)
McGILL			
MONTREAL	1,241,851 (58.6)	684,207 (32.3)	116,449 (5.5)
SHERBROOKE			
SIR GEO. WILLIAMS	630,079 (52.6)	439,495 (36.6)	76,692 (6.4)
NEW BRUNSWICK			
DALHOUSIE	701,873 (52.2)	514,788 (38.3)	69,338 (5.1)
MEMORIAL	338,000 (36.1)	528,000 (56.5)	53,000 (5.7)

* Includes University's portion of pension payments

EXPENDITURES, 1968/69

UISITIONS and INDING	SUPPLIES and EQUIPMENT	OTHER LIBRARY EXPENDITURES	TOTAL LIBRARY EXPENDITURES	UNIVERSITY EXPEN- DITURES	PERCENT to LIBRARY
9, 920 (32. 5)	179, 266 (5. 2)	179, 734 (5. 3)	3, 418, 158	42, 902, [illegible]63	7.96
3, 516 (36. 6)	177, 254 (9. 8)	44, 175 (2. 4)	1, 814, 018		
0, 460 (53. 4)	46, 066 (2. 8)	35, 258 (2. 1)	1, 668, 279	11, 165, 573	14. 94
6, 419 (44. 0)	107, 008 (3. 2)	123, 357 (3. 7)	3, 335, 655	43, 411, 000	7. 68
3, 561 (51. 7)	61, 002 (4. 0)	27, 449 (1. 8)	1, 515, 763	17, 931, 000	8. 45
2, 893 (46. 0)	38, 685 (4. 4)	16, 327 (1. 9)	876, 145	8, 422, [illegible]17	10. 40
2, 812 (40. 3)	53, 419 (4. 0)	59, 110*(4. 4)	1, 347, 383		
0, 281 (36. 1)	159, 604 (10. 7)	nil	1, 495, 229	33, 814, [illegible]83	4. 42
0, 000 (44. 8)	87, 581 (5. 0)	79, 860 (4. 6)	1, 742, 367	14, 820, 000	11. 76
9, 267 (50. 3)	122, 461 (7. 7)	5, 089 (0. 3)	1, 588, 987		
8, 494 (50. 6)	101, 612 (5. 4)	40, 207 (2. 2)	1, 874, 886	31, 000, 000	6. 05
4, 400 (47. 0)	58, 775 (4. 1)	41, 420 (2. 9)	1, 414, 720	22, 564, 000	6. 27
3, 448 (32. 5)	580, 003 (9. 8)	42, 861 (0. 7)	5, 893, 843		
6, 495 (45. 8)	129, 077 (5. 1)	7, 967 (0. 3	2, 547, 026		
4, 039 (56. 5)	42, 183 (2. 7)	59, 395 (3. 8)	1, 581, 258	12, 170, [illegible]67	12. 99
0, 000 (25. 9)	91, 000 (3. 8)	146, 000 (6. 1)	2, 395, 000	30, 276, 000	7. 91
4, 207 (32. 3)	116, 449 (5. 5)	76, 178 (3. 6)	2, 118, 685	41, 453, 008	5. 11
9, 495 (36. 6)	76, 692 (6. 4)	52, 825 (4. 4)	1, 199, 091		
4, 788 (38. 3)	69, 338 (5. 1)	59, 044 (4. 4)	1, 345, 043	16, 534, 000	8. 14
28, 000 (56. 5)	53, 000 (5. 7)	16, 000 (1. 7)	935, 000	9, 000, 000	10. 39

EXPENDITURES, 1968/6

INSTITUTION	Salaries	Acquisitions and Binding	Supplies and Equipment
Notre Dame			
Lethbridge			
Brandon			
Winnipeg			
Brock	166,340(41.5)	200,000(49.9)	17,900(4.5)
Lakehead			
Laurentian	217,000(41.0)	276,000(52.2)	26,250(5.0)
Royal Military College			
Trent			
Victoria	231,300(76.8)	55,134(18.3)	13,474(4.5)
Waterloo Lutheran	133,754(49.3)	117,488(43.3)	10,830(4.0)
Bishop's			
Moncton			
Mount Allison			
Acadia	126,706(63.2)	66,315(33.1)	6,611(3.3)
Mount St. Vincent			
St. Francis Xavier			
St. Mary's	143,420(53.5)	114,800(42.9)	6,500(2.4)
Prince Edward Island			

* Includes University's portion of pension payments.

DITURES, 1968/69

Supplies and Equipment	Other Library Expenditures	Total Library Expenditures	Total University Expenditures	Percent to Library
17,900(4.5)	16,600(4.1)	400,840	4,300,000	9.32
26,250(5.0)	9,750(1.8)	529,000	4,500,000	11.76
13,474(4.5)	1,271(0.4)	301,179	2,498,906	12.05
10,830(4.0)	9,358*(3.4)	271,430	3,664,895	7.41
6,611(3.3)	865(0.4)	200,497	3,874,754	5.17
6,500(2.4)	3,300(1.2)	268,020	2,875,000	9.32

BUDGETS, 1969/7

INSTITUTION	SALARIES	ACQUISITIONS and BINDING	SUPPLIES and EQUIPMENT
BRITISH COLUMBIA	2, 186, 284 (58. 5)	1, 180, 312 (31. 6)	101, 553 (2. 7)
SIMON FRASER	1, 159, 893 (59. 3)	623, 500 (31. 8)	112, 520 (5. 8)
VICTORIA	857, 296 (53. 0)	662, 500 (41. 0)	57, 500 (3. 5)
ALBERTA	2, 070, 180 (46. 9)	2, 011, 000 (45. 5)	144, 700 (3. 3)
CALGARY	925, 800 (44. 6)	1, 028, 000 (49. 6)	60, 000 (2. 9)
REGINA	519, 835 (56. 7)	361, 278 (39. 4)	21, 807 (2. 4)
SASKATOON	804, 614 (53. 6)	550, 400 (36. 7)	30, 610 (2. 0)
MANITOBA	973, 045 (51. 0)	777, 485 (40. 8)	155, 550 (8. 2)
CARLETON	944, 401 (48. 1)	841, 500 (42. 9)	83, 500 (4. 3)
GUELPH	741, 500 (52. 9)	549, 000 (39. 2)	102, 000 (7. 3)
McMASTER	968, 000 (51. 0)	668, 000 (35. 2)	92, 500 (4. 9)
OTTAWA	969, 245 (47. 1)	965, 056 (46. 9)	78, 565 (3. 8)
QUEEN'S			
TORONTO	( )	1, 511, 500 ( )	761, 835 ( )
WATERLOO			
WESTERN ONTARIO	1, 481, 693 (55. 3)	976, 350 (36. 4)	209, 825 (7. 8)
WINDSOR	671, 860 (35. 8)	1, 048, 315 (55. 8)	63, 613 (3. 4)
YORK	1, 065, 775 (46. 8)	1, 041, 625 (45. 7)	80, 000 (3. 5)
LAVAL	1, 700, 000 (73. 9)	445, 500 (19. 4)	65, 000 (2. 8)
McGILL			
MONTREAL	1, 585, 885 (60. 2)	745, 000 (28. 3)	180, 500 (6. 9)
SHERBROOKE			
SIR GEO. WILLIAMS	746, 545 (55. 8)	438, 000 (32. 7)	52, 200 (3. 9)
NEW BRUNSWICK			
DALHOUSIE	767, 885 (50. 1)	562, 815 (36. 7)	60, 960 (4. 0)
MEMORIAL	432, 000 (48. 0)	423, 500 (47. 1)	29, 000 (3. 2)

* Includes University's portion of pension payments

BUDGETS, 1969/70

ISITIONS d DING	SUPPLIES and EQUIPMENT	OTHER LIBRARY EXPENDITURES	TOTAL LIBRARY BUDGET	UNIVERSITY BUDGET	PERCENT to LIBRARY
312 (31.6)	101, 553 (2. 7)	270, 634 (7. 2)	3, 738. 783	51, 262, 926	7. 29
500 (31. 8)	112, 520 (5. 8)	61, 212 (3. 1)	1, 957, 125	19, 500, 000	10. 04
500 (41. 0)	57, 500 (3. 5)	41, 000 (2. 5)	1, 618, 296	13, 118, 906	12. 34
000 (45. 5)	144, 700 (3. 3)	189, 500 (4. 3)	4, 415, 380	55, 935, 000	7. 89
000 (49. 6)	60, 000 (2. 9)	60, 200*(2. 9)	2, 074, 000	25, 600, 000	8. 10
278 (39. 4)	21, 807 (2. 4)	13, 700 (1. 5)	916, 620	10, 000, 000	9. 17
400 (36. 7)	30, 610 (2. 0)	114, 730 (7. 7)	1, 500, 354	24, 500, 000	6. 12
485 (40. 8)	155, 550 (8. 2)	nil	1, 906, 080	39, 220, 088	4. 86
500 (42. 9)	83, 500 (4. 3)	91, 800*(4. 7)	1, 961, 201	17, 595, 398	11. 15
000 (39. 2)	102, 000 (7. 3)	8, 518 (0. 6)	1, 401, 018	20, 000, 000	7. 01
000 (35. 2)	92, 500 (4. 9)	168, 000 (8. 9)	1, 896, 500	36, 000, 000	5. 27
056 (46. 9)	78, 565 (3. 8)	46, 414 (2. 2)	2, 059, 280	28, 667, 023	7. 18
500 ( )	761, 835 ( )	42, 311 ( )			
350 (36. 4)	209, 825 (7. 8)	14, 200 (0. 5)	2, 682, 068		
315 (55. 8)	63, 613 (3. 4)	94, 014*(5. 0)	1, 877, 802	15, 616, 190	12. 02
625 (45. 7)	80, 000 (3. 5)	91, 600*(4. 0)	2, 279, 000		
500 (19. 4)	65, 000 (2. 8)	89, 500 (3. 9)	2, 300, 000	35, 032, 000	6. 57
000 (28. 3)	180, 500 (6. 9)	120, 153*(4. 6)	2, 631, 538	50, 282, 620	5. 23
000 (32. 7)	52, 200 (3. 9)	102, 255*(7. 6)	1, 339, 000		
815 (36. 7)	60, 960 (4. 0)	140, 000 (9. 2)	1, 531, 660	19, 363, 000	7. 91
500 (47. 1)	29, 000 (3. 2)	15, 500 (1. 7)	900, 000	11, 500, 000	7. 83

BUDGETS, 1

INSTITUTION	Salaries	Acquisitions and Binding	Supplies and Equipment
Notre Dame			
Lethbridge			
Brandon			
Winnipeg			
Brock	212,500(46.9)	200,000(44.1)	17,000(3.8)
Lakehead			
Laurentian	260,000(47.3)	242,000(44.0)	37,500(6.8)
Royal Military College			
Trent	263,300(52.6)	180,900(36.2)	13,000(2.6)
Victoria	238,034(74.8)	64,000(20.1)	14,525(4.6)
Waterloo Lutheran	165,420(49.8)	133,000(40.0)	4,200(1.3)
Bishop's			
Moncton			
Mount Allison	127,000(45.6)	140,173(50.4)	5,846(2.1)
Acadia	181,570(57.8)	120,000(38.2)	11,455(3.7)
Mount St. Vincent			
St. Francis Xavier			
St. Mary's	212,700(53.2)	171,290(42.8)	12,510(3.1)
Prince Edward Island			

* Includes University's portion of pension payments.

BUDGETS, 1969/70

	Supplies and Equipment	Other Library Expenditures	Total Library Expenditures	Total University Expenditures	Percent to Library
1)	17,000(3.8)	23,500(5.2)	453,000	5,000,000	9.06
0)	37,500(6.8)	10,500(1.9)	550,000	4,000,000	13.75
2)	13,000(2.6)	42,800(8.6)	500,000	4,339,000	11.52
1)	14,525(4.6)	1,500(0.5)	318,059	2,770,670	11.48
0)	4,200(1.3)	29,477*(8.9)	332,097	4,133,112	8.04
4)	5,846(2.1)	5,300(1.9)	278,319	3,435,000	8.10
2)	11,455(3.7)	1,060(0.3)	314,085	4,609,146	6.82
8)	12,510(3.1)	3,500(0.9)	400,000	3,875,000	10.32

SALARY SCALES, 1969/70 (Figures in parentheses indicate

	Junior Lib. Assts.	Senior Lib. Assts.	Library Specialist Staff	Other Supporting Staff
British Columbia	3,456-4,296(2)	4,932-6,780(2)	7,800-11,640	3,300-6,840(11)
Simon Fraser	3,240-4,800(3)	4,320-6,480(3)	5,820-15,060(9)	
Victoria	3,384-5,004(3)	4,764-7,752(3)		3,384-6,384(7)
Alberta	2,916-4,104(2)	4,508-8,124(4)	7,650-14,900(3)	2,916-10,896(17)
Calgary	3,408-5,376(2)	4,944-8,472(3)	5,196- 6,516	3,084-6,204 (4)
Regina	3,252-5,880(5)	5,004-6,732(2)	6,085- 8,500	
Saskatoon	3,252-5,436	5,004-7,056	6,000- 8,500	
Manitoba	2,520-4,380(3)	3,780-7,440(3)		5,200- 7,000
Carleton	3,360-4,980(2)	4,800-8,600(3)	6,200- 7,600(3)	4,100- 5,340(2)
Guelph	2,834-5,530(3)	4,360-7,600(3)		
McMaster	3,300-4,560(3)	4,380-5,500(2)	6,200- 8,200	3,380- 4,680(4)
Ottawa	3,168-5,064(3)	4,224-6,744(3)	8,328-12,648(2)	5,112-7,392 (3)
Queen's				
Toronto				
Waterloo				
Western Ontario	2,975-4,600(2)	3,700-6,300(2)	6,720- 7,200	3,900- 8,525
Windsor				
York	3,450-4,250	4,150-7,250(3)	10,000-	4,150- 6,200(3)
Laval	3,736-6,258(4)	5,184-8,770	7,260-14,340	2,783- 7,685
McGill				
Montreal	4,641-6,071	5,135-6,565		3,016- 5,382(4)
Sherbrooke				
Sir George Williams	3,060-4,920(3)	4,080-6,900(3)		
New Brunswick				
Dalhousie	2,700-5,100(6)	3,060-6,120(3)	3,420- (3)	2,700- 6,120(6)
Memorial	2,600-4,500(4)	4,200- (2)	7,000- (2)	3,600- 5,500

es in parentheses indicate number of scales in category)

brary ialist aff	Other Supporting Staff	Beginning Professional Grade	Other General Librarians	Department or Div. Heads	Assistant & Associate Librarian
1,640	3,300-6,840(11)	7,000-		9,600-	no scale
5,060(9)		7,200-8,300	8,400-15,000(2)	12,000-15,000	15,000-20,000
	3,384-6,384(7)	7,000-	8,400-	10,800-	no scale
4,900(3)	2,916-10,896(17)	7,650-10,250	10,300-11,750	11,800-13,750	13,800-18,550
6,516	3,084-6,204 (4)	7,750- 8,600	9,025-11,800(2)	12,300-13,750	13,800-18,550
8,500		7,500-10,300	10,200-11,700	11,200-14,200	no scale
8,500		7,500-10,300	10,200-11,700	11,200-14,200	13,400-17,250
	5,200- 7,000	7,500-		no scale	no scale
7,600(3)	4,100- 5,340(2)	7,300-	7,700-	9,400-	no scale
		7,500- 9,500	9,200-11,000	11,000-13,000	13,000-16,000
8,200	3,380- 4,680(4)	7,500-		8,500-	13,500-
2,648(2)	5,112-7,392 (3)	7,320- 9,528	8,064-10,448	8,856-11,520	10,080-13,872
		7,300-	8,100-	12,000-	no scale
7,200	3,900- 8,525	7,300- 7,800	7,900-10,000	9,100-12,500	no scale
	4,150- 6,200(3)	7,300- 8,000	7,525-	9,900-13,500	no scale
4,340	2,783- 7,685	6,800- 7,365	7,350-10,530	7,930-17,330	15,200-18,685
	3,016- 5,382(4)	6,500- 8,060	7,160- 9,354(2)	8,304-11,580	10,200-15,800(
		7,500- 9,500	8,500-10,800	9,800-	no scale
(3)	2,700- 6,120(6)	7,200- 8,500	8,500-10,000	9,500-12,000	12,000-16,000
(2)	3,600- 5,500	7,200-	8,300-	9,300-	12,000-

SALARY SCALES, 1969/70 (Figures in parenthes

INSTITUTION	Junior Library Assistants	Senior Library Assistants	Library Specialist Staff	Other Supporting Staff	Beginning Professional Grade
Notre Dame					
Lethbridge					
Brandon					
Winnipeg					
Brock	3,300-5,160(2)	4,320-6,600(2)		4,320-6,600	7,400-
Lakehead					
Laurentian	3,276-4,680	4,992-6,250	6,708-	3,120-5,460	7,500-
Royal Military Coll.					
Trent	3,120-3,900(2)	3,900-5,460(2)	6,000-		7,400-8,200
Victoria	3,740-4,630(2)	4,410-7,290(3)			7,300-
Waterloo Lutheran	3,060-4,140(7)	4,000-5,600(7)		3,540-4,800	7,300-9,100
Bishop's					
Moncton					
Mt. Allison	2,500-3,600(2)	3,600- (2)			6,800-
Acadia	2,664-2,800	3,240-4,000			6,000-6,500
Mt. St. Vincent					
St. Francis Xavier					
St. Mary's	No salary scales reported				
Pr. Edward Island					

9/70 (Figures in parentheses indicate number of scales in category)

Other Supporting Staff	Beginning Professional Grade	Other General Librarians	Department or Div. Heads	Assistant or Associate Librarian	Aver. Pro. Salary	Median Pro. Salary
4, 320-6, 600	7, 400-		9, 600-	12, 800-	9, 362	9, 000
3, 120-5, 460	7, 500-	8, 250-	9, 000-		9, 666	9, 000
	7, 400-8, 200	8, 200-10, 000	9, 500-11, 500	10, 600-12, 600	9, 937	9, 900
	7, 300-	8, 100-	9, 700-		9, 053	9, 000
3, 540-4, 800	7, 300-9, 100		8, 700-11, 500(2)		9, 111	9, 050
	6, 800-		8, 500-		9, 500	7, 600
	6, 000-6, 500	6, 950-8, 300	7, 700- 9, 300		8, 285	7, 700
					11, 300	10, 000

POSITIONS ESTABLISHED, AND ESTABLISHED POS

INSTITUTION	Junior Library Assistants	Senior Library Assistants	Other Non-Professional Staff	Total Non-Professional Staff	Ge Lib
British Columbia	123 - 8	109 - 5	45 - 2	277 - 15	4
Simon Fraser	82 - 8	49 - 0	35 - 0	166 - 8	2
Victoria	53 - 12	30 - 1	15 - 2	98 - 15	2
Alberta	141 - 27	131 - 16	38 - 7	310 - 50	6
Calgary	63 - 0	39 - 0	19 - 0	121 - 0	2
Regina	42 - 0	20 - 0	1 - 0	63 - 0	1
Saskatoon	45 - 0	35 - 0	1 - 0	81 - 0	2
Manitoba	89 - 8	46 - 0	5 - 0	140 - 8	
Carleton	92 - 1	32 - 0	14 - 0	138 - 1	1
Guelph	50 - 0	37 - 0	10 - 0	97 - 0	2
McMaster	76 - 19	14 - 2	23 - 3	113 - 24	1
Ottawa	61 - 18	25 - 6	7 - 2	93 - 26	3
Queen's					
Toronto	Reclassification in progress			509 - 53	13
Waterloo					
Western Ontario	120 - 11	84 - 1	8 - 0	212 - 12	4
Windsor					
York	39 - 1	83 - 0	13 - 2	135 - 3	3
Laval	32 - 2	21 - 0	172 - 2	225 - 4	2
McGill					
Montreal	54 - 8	8 - 2	103 - 12	165 - 22	6
Sherbrooke					
Sir George Williams	55 - 5	34 - 1	nil	89 - 6	1
New Brunswick					
Dalhousie	49 - 8	46 - 9	26 - 2	121 - 19	2
Memorial	31 - 1	15 - 1	3 - 2	49 - 4	1

ND ESTABLISHED POSITIONS VACANT, JULY 1, 1969

s- f	Total Non-Profes-sional Staff	General Librarians	Depart-ment or Div. Heads	Assistant, Associate and Chief Librarian	Total Professional Staff	Total Library Staff
2	277 - 15	48½ - 1	37 - 2	6 - 1	91½ - 4	368½ - 19
0	166 - 8	20 - 2	6 - 0	4 - 2	30 - 4	196 - 12
2	98 - 15	25 - 2	7 - 0	2 - 0	34 - 2	132 - 17
7	310 - 50	62½ - 7½	12 - 3	6 - 1	80½ - 11½	390½ - 61½
0	121 - 0	28 - 1	6 - 1	3 - 0	37 - 2	158 - 2
0	63 - 0	11 - 2	6 - 0	2 - 0	19 - 2	82 -- 2
0	81 - 0	25 - 3½	7 - 2	2 - 0	34 - 5½	115 - 5½
0	140 - 8	No categorization in effect			34 - 0	174 - 8
0	138 - 1	18 - 0	8 - 0	1 - 0	27 - 0	165 - 1
0	97 - 0	21 - 0	7 - 0	3 - 0	31 - 0	128 - 0
3	113 - 24	13 - 5	7 - 1	3 - 0	23 - 6	136 - 30
2	93 - 26	32 - 1	5 - 0	5 - 0	42 - 1	135 - 27
	509 - 53	134 - 13	9 - 1	7 - 1	150 - 15	659 - 68
0	212 - 12	47 - 8	11 - 0	3 - 0	61 - 8	273 - 20
2	135 - 3	34 - 1	3 - 1	5 - 1	42 - 3	177 - 6
2	225 - 4	28 - 3	13 - 0	3 - 0	44 - 3	269 - 7
2	165 - 22	60 - 3	18 - 1	8 - 1	86 - 5	251 - 27
	89 - 6	19 - 5	6 - 0	3 - 0	28 - 5	117 - 11
2	121 - 19	21 - 1	7 - 0	4 - 0	32 - 1	153 - 20
2	49 - 4	11 - 2	6 - 2	4 - 2	21 - 6	70 - 10

POSITIONS ESTABLISHED, AND ESTABLISHED P

INSTITUTION	Junior Library Assistants	Senior Library Assistants	Other Non-Professional Staff	Total Non-Professional Staff
Notre Dame				
Lethbridge				
Brandon				
Winnipeg				
Brock	17 - 2	6 - 2	1 - 0	24 - 4
Lakehead				
Laurentian	21 - 2	10 - 0	10 - 1	41 - 3
Royal Military College				
Trent	18 - 6	16 - 3	1 - 0	35 - 9
Victoria	11 - 0	11 - 0		22 - 0
Waterloo Lutheran	12 - 0	6 - 0	1 - 0	19 - 0
Bishop's				
Moncton				
Mount Allison	11 - 0	7 - 1		18 - 1
Acadia	4 - 0	11 - 3		15 - 3
Mount St. Vincent				
St. Francis Xavier				
St. Mary's	17 - 1	13 - 0	7 - 0	37 - 1
Prince Edward Island				

ED, AND ESTABLISHED POSITIONS VACANT, JULY 1, 1969

Other on-Pro- ional Staff	Total Non-Professional Staff	General Librarians	Department or Div. Heads	Assistant, Associate & Chief Librn.	Total Professional Staff	Total Library Staff
1 - 0	24 - 4	4 - 2	3 - 0	2 - 1	9 - 3	33 - 7
0 - 1	41 - 3	3 - 0	2 - 0	1 - 0	6 - 0	47 - 3
1 - 0	35 - 9	5½ - 2½	3 - 0	2 - 0	10½ - 2½	45½ - 11½
	22 - 0	8 - 0	4 - 0	1 - 0	13 - 0	35 - 0
1 - 0	19 - 0	3 - 1	5 - 0	1 - 0	9 - 1	28 - 1
	18 - 1	3 - 1	1 - 0	1 - 0	5 - 1	23 - 2
	15 - 3	6 - 3	3 - 0	1 - 0	10 - 3	25 - 6
7 - 0	37 - 1	3 — 2	4 - 1	1 - 0	8 - 3	45 - 4

INSTITUTION	Enrollment, 1968/69			Projected Enrollment, 1969/70			Library per St
	Graduate Students	Under-Graduates	Total	Graduate Students	Under-Graduates	Total	1968/69 Actual
British Columbia	2, 456	17, 632	20, 088	2, 800	18, 670	21, 470	170. 16
Simon Fraser	404	6, 127	6, 531	618	6, 740	7, 358	277. 76
Victoria	135	4, 535	4, 670	175	5, 200	5, 375	357. 24
Alberta	1, 817	13, 476	15,293	2, 100	15, 700	17, 800	218. 12
Calgary	827	6, 968	7, 795	1, 050	8, 750	9, 800	194. 45
Regina	143	3, 664	3, 807	175	4, 200	4, 375	230. 14
Saskatoon	578	9, 290	9, 868	622	9, 468	10, 090	136. 56
Manitoba	1, 487	11, 342	12, 829	1, 700	12, 800	14, 500	116. 55
Carleton	699	6, 052	6, 751	824	7, 123	7, 947	258. 09
Guelph	402	4, 747	5, 149	622	5, 234	5, 856	308. 60
McMaster	1, 202	5, 152	6, 354	2, 070	5, 230	7, 300	295. 07
Ottawa	888	5, 268	6, 156	1, 038	5, 931	6, 969	229. 81
Queen's							
Toronto	6, 189	19, 242	25, 431	7, 300	20, 688	27, 988	231. 76
Waterloo							
Western Ontario	1, 335	8, 070	9, 405	1, 480	9, 370	10, 850	270. 82
Windsor	350	3, 864	4, 214	450	4, 675	5, 125	375. 24
York	351	4, 858	5, 209	400	5, 400	5, 800	
Laval	768	9, 876	10, 644	1, 046	10, 725	11, 771	225. 01
McGill							
Montreal			10, 500			12, 500	201. 78
Sherbrooke							
Sir George Williams	246	10, 274	10, 520	275	10, 800	11, 075	113. 98
New Brunswick							
Dalhousie	601	3, 285	3, 886	550	3, 750	4, 300	346. 13
Memorial	219	5, 282	5, 501	225	5, 300	5, 525	169. 97

Enrollment, 1969/70		Library Expenditure per Student (in $)		University Expenditure per Student (in $)		Students (1969/70) per Staff Member	Students per Pro- fessional Staff	Libraria as % of Total Staff
Under- Graduates	Total	1968/69 Actual	1969/70 Projected	1968/69 Actual	1969/70 Projected			
18,670	21,470	170.16	174.14	2,135.74	2,387.65	58	235	24.8
6,740	7,358	277.76	265.99		2,650.18	38	245	15.3
5,200	5,375	357.24	301.12	2,390.91	2,440.73	41	158	25.8
15,700	17,800	218.12	248.06	2,838.61	3,142.42	46	221	20.6
8,750	9,800	194.45	211.63	2,300.32	2,612.24	62	265	23.4
4,200	4,375	230.14	209.51	2,212.27	2,285.71	53	230	23.2
9,468	10,090	136.56	148.70		2,428.15	88	297	29.6
12,800	14,500	116.55	131.45	2,635.80	2,704.83	83	427	19.5
7,123	7,947	258.09	246.80	2,195.23	2,214.09	48	294	16.4
5,234	5,856	308.60	239.24		3,415.30	46	189	24.2
5,230	7,300	295.07	259.79	4,878.82	4,931.51	54	317	16.9
5,931	6,969	229.81	295.49	3,665.32	4,113.51	52	166	31.1
20,688	27,988	231.76				43	187	22.8
9,370	10,850	270.82	247.20			40	178	22.3
4,675	5,125	375.24	366.40	2,888.03	3,047.06	51	177	29.0
5,400	5,800		392.93			33	138	23.7
10,725	11,771	225.01	195.40	2,844.42	2,976.13	44	268	16.4
	12,500	201.78	210.54	3,947.99	4,022.61	50	145	34.3
10,800	11,075	113.98	120.90			95	396	23.9
3,750	4,300	346.13	356.20	4,254.76	4,503.02	28	134	20.9
5,300	5,525	169.97	162.90	1,636.07	2,081.45	79	263	30.0

INSTITUTION	Enrollment, 1968/69			Projected Enrollment, 1969/70			Lib per 196 Ac
	Graduate Students	Under-graduates	Total	Graduate Students	Under-graduates	Total	
Notre Dame							
Lethbridge							
Brandon							
Winnipeg							
Brock	7	1,060	1,067	15	1,500	1,515	375
Lakehead							
Laurentian	0	1,600	1,600	0	1,770	1,770	330
Royal Mil. Coll.							
Trent	4	1,159	1,163	8	1,430	1,438	
Victoria	32	2,518	2,550	32	2,518	2,550	118
Waterloo Luth.	110	2,407	2,517	125	2,550	2,675	107
Bishop's							
Moncton							
Mt. Allison	32	1,266	1,298	45	1,255	1,300	189
Acadia	56	1,921	1,977	75	2,025	2,100	101
Mt. St. Vincent							
St. Francis Xavier							
St. Mary's	81	1,561	1,642	72	2,000	2,072	163
Pr. Edward Is.							

nrollment, 1969/70		Library Expenditure per Student (in $)		University Expenditure per Student (in $)		Students (1969/70) per Staff members	Students per Professional Staff	Librarians as % of Total Staff
nder-aduates	Total	1968/69 Actual	1969/70 Projected	1968/69 Actual	1969/70 Projected			
1,500	1,515	375.67	299.01	4,030.00	3,300.33	46	168	27.3
1,770	1,770	330.63	310.73	2,812.50	2,259.89	38	295	12.8
1,430	1,438		347.70		3,017.39	32	137	23.1
2,518	2,550	118.11	124.73	979.96	1,086.54	73	196	37.1
2,550	2,675	107.84	122.58	1,456.06	1,545.09	96	297	32.1
1,255	1,300	189.03	214.09	2,335.13	2,642.31	57	260	21.7
2,025	2,100	101.42	149.57	1,959.92	2,194.83	84	210	40.0
2,000	2,072	163.22	193.05	1,750.91	1,870.18	46	259	17.8

EXPENDITURES, 1968

Lakehead	214, 000(35. 4)	343, 000(56. 7)	31, 000(5. 1)	17, 0
McGill	1, 710, 134(65. 7)	671, 439(25. 8)	94, 039(3. 6)	127, 5
Sherbrooke	431, 445(55. 2)	256, 250(32. 8)	34, 025(4. 3)	60, 5

BUDGETS, 1969/70

Lakehead	287, 935(40. 4)	365, 000(51. 2)	32, 000(4. 5)	27, 6
McGill	2, 288, 750(77. 5)	492, 840(16. 7)	118, 335(4. 0)	53, 0
Sherbrooke	521, 725(54. 3)	331, 385(34. 5)	33, 450(3. 5)	73, 4

SALARY SCALES, 1969

Lakehead	2, 820-3, 684(3)	3, 300- (3)	4, 800-	2, 820-3, 684(3)	7,
McGill	3, 000-4, 500(2)	3, 600-5, 520(2)	10, 000-	4, 700-7, 080(2)	6,
Sherbrooke	2, 756-4, 316(3)	4, 004-6, 032(3)		3, 484-5, 564(3)	6,

POSITIONS AND VACANCIES,

Lakehead	24 - 0	10 - 0	8 - 0	42 - 0	4 - 0
McGill	128 - 23	140 - 15	32 - 2	300 - 40	Classifi
Sherbrooke	36 - 3	23 - 3	10 - 0	69 - 6	13 - 2

OTHER INFORMATI

Lakehead	34	2, 437	2, 471	50	3, 176	3, 226	244. 84
McGill	2, 638	12, 460	15, 098	3, 000	13, 000	16, 000	172. 42
Sherbrooke	285	2, 939	3, 224	407	3, 640	4, 047	242. 63

EXPENDITURES, 1968/69

.7)	31,000(5.1)	17,000*(2.8)	605,000	5,680,000	10.65
.8)	94,039(3.6)	127,549 (4.9)	2,603,161	48,095,000	5.41
.8)	34,025(4.3)	60,515*(7.7)	782,235	12,972,190	6.03

BUDGETS, 1969/70

.2)	32,000(4.5)	27,600*(3.9)	712,535	6,702,000	10.63
.7)	118,335(4.0)	53,075 (1.8)	2,953,000	53,042,000	5.57
.5)	33,450(3.5)	73,440*(7.7)	960,000	15,790,160	6.08

SALARY SCALES, 1969/70

800-	2,820-3,684(3)	7,500-	8,850-	10,650-	13,500-
000-	4,700-7,080(2)	6,800-	Salaries under review		14,700-
	3,484-5,564(3)	6,700-9,700	7,500-11,700(2)	8,100-16,100(2)	10,600-17,600

TIONS AND VACANCIES, JULY 1, 1969

- 0	42 - 0	4 - 0	4 - 0	2 - 1	10 - 1	52 - 1
- 2	300 - 40	Classification under Review			96 - 16	396 - 56
- 0	69 - 6	13 - 2	6 - 1	2 - 0	21 - 3	90 - 9

OTHER INFORMATION

3,176	3,226	244.84	220.87	2,298.67	2,077.50	62	323	19.2
13,000	16,000	172.42	184.56	3,185.52	3,315.13	40	167	24.2
3,640	4,047	242.63	237.19	4,023.63	3,901.70	45	193	23.3

APPENDIX C: LIBRARY COMPUTING RESOURCES

	ALBERTA	U.B.C.	BROCK	CALGARY	DALHOUSIE	GUELPH	LAKEHEAD	LAVAL	MANITOBA	MCMASTER	MONTREAL	MT. ALLISON	UNB	OTTAWA	QUEEN'S	SASKATCHEWAN
S/360 MODEL	40	67	20	50	50	50	40	50	65				-	65	50	50
OTHER		HONEY WELL H-200								IBM 7040	CDC	IBM 1130	-			
ANALYSIS BY STAFF	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y		Y	Y	Y
COMPUTING COST		$250 / hr INV		$100 / hr	$25 / hr			$100 / hr		$30 / hr				$525 / hr		$60 / hr
TIME AVAILABLE	4h / day	250 hr / mo	2 h / day	N / S	AS REQ	45 h / mo		35 h / WK	AS REQ	7 h / WK				N / S	AS REQ	AS REQ
OUTSIDE INPUTS USED &	∼	MARC [TEST]	∼	∼	MARC [RCD]	∼	NONE	∼	NONE	NONE	NONE	∼	∼	∼	NONE	MARC
COULD BE USED		NOT DETERMINED				MARC		MARC SDI CDNA							MARC	NRC UNION LIST
SYSTEM ANALYSTS	3 / 5	1 / 1	-	-	0 / 1	1 / -	-	4 / -	2 / 2	1/3 / 1	-	-	-	1/12 / -	2 / 1	1 / 2
ANALIST LIBRARIANS	2 / 2	1 / 2	-	1 / -	0 / 1	1 / -	-	1 / -	-	1/2 / 1	-	1 / -	-	- / 1	0 / 1	1/2 / 1
PROGRAMMERS	1 / 5	2 / 4	-	1 / -	2 / 1	1 1/3 / -	-	-	-	2 / 3	-	1/2 / -	-	1/12 / 1	0 / 1-3	1/2 / 1
MACHINE OPERATERS	4 / 6	9 / 12	1 / -	-	6 / 12	5 / -	-	13 / -	-	2 / -	-	-	-	-	0 / 0	1 1/2 / 5
CLERICAL	2 / 4	1 / 2	-	-	2 / 4	1 / -	-	9 / -	-	-	-	2 / -	-	2 / 6	2 / 5-10	-
OTHER								3 / -								

Inv - invoice As req - as required h/d - hours a day h/mo - hours a month

Y - yes 1/2 - 1 person on staff now, 2 estimated staff in 5 ye

LIBRARY AUTOMATION QUESTIONNAIRE -- RESOURCES

	LAKEHEAD	LAVAL	MANITOBA	MCMASTER	MONTREAL	MT. ALLISON	UNB	OTTAWA	QUEEN'S	SASKATCHEWAN	SHERBROOKE	SIMON FRASER	S.G. WILLIAMS	TORONTO	VICTORIA	WATERLOO	WESTERN ONT.	WINDSOR	YORK
0	40	50	65				-	65	50	50	40	50			44	75	40	50	50
				IBM 7040	CDC	IBM 1130	–						CDC 3,300	SDS SIGMA 7					
		Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
		$100 / hr		$30 / hr				$525 / hr		$60 / hr	$120 / hr		$300 / hr		$77 / hr	$20 PER UNIT	$50 / hr	$200 / hr	
h / 0		35 h / WK	AS REQ	7 h / WK				N / S	AS REQ	AS REQ		25% TOTAL		AS REQ	AS REQ	2 hr / MO	15 h WK & WKEND	AS REQ	AS REQ
~	NONE	~	NONE	NONE	NONE	~	~	~	NONE	MARC	~	~	~	NONE	NONE	NONE	~	MARC	MARC PLUS SERIAL
RC		MARC SDI CDNA							MARC	NRC UNION LIST	MARC			ANY	UBC SERIAL		ANY		ISI UBC SERIAL
/ –	–	4 / –	2 / 2	1/3 / 1	–	–	–	1/12 / –	0 / 1	1 / 2	1 / 1	1 / –	1 / –	–	1 / 1	–	1/3 / 1	1/3 +	1 / 2
/ –	–	1 / –	–	1/2 / 1	-	1 / –	–	– / 1	0 / 1	1/2 / 1	– / 2	1 / –	—	2 / –	– / 1	1 / –	1 / 2	1/2 / 11	1 / 2
/ –	–	—	–	2 / 3	–	1/2 / –	–	1/12 / 1	0 / 1-3	1/2 / 1	– / 1	–	–	9 / –	1 / 3	—	1 / 3	3 / 5+	1 / 2
/ –	–	13 / –	–	2 / –	–	–	–	—	0 / 0	1½ / 5	–	2 / –	–	2 / –	4 / 6	–	6 / 0	4 / 3	—
/ –	–	9 / –	–	—	–	2 / –	–	2 / 6	2 / 5-10	—	– / 5	1 / –	–	13 / –	1/2 / 1	–	3 / 4	1 / 3	2½ / 5
		3 / –																	1 / 2

h/d - hours a day h/mo - hours a month n/s - not settled h/wk – hours a week

rson on staff now, 2 estimated staff in 5 years.

APPENDIX D: CO-OPERATIVE ARRANGEMENTS

	ALBERTA	U.B.C.	BROCK	CALGARY	DALHOUSIE	GUELPH	LAKEHEAD	LAVAL	MANITOBA	MCMASTER	MONTREAL	MT. ALLISON	UNB	OTTAWA	QUEEN'S	SASKATCHEWAN
* Library bears Development	Y	Y			Y	Y		Y	NO	Y		NO		NK		Y
# Benefits evaluated?	N	S	S	NA	S	S	N	S	N	N	N	N	N	N	S	S
Co-operative arrangement?	N	Y	N		Y	Y		Y						Y	N	Y
Relations with Computing centre	N	G	G		G	E		F	EX	EX	EX			VG	VG	EX
Outside consultation	N	Vic & SFU	N		N	K		O	N	N				S	N	ID
CC professional staff	26	28	5		14	38	5	25	14	30	20	3		14	24	15
CC other staff	31	29	6		13	40	17	50	22	30	30	0		38	34	21
Total computer center staff	57	57	11	46	27	78	22	75	36	60	50	3		52	58	36

N=none   E=staff exchange   P=programming done by Computer Center   G=good   VG=very good

Blanks indicate no reply   Y=yes   NO=no   S=some   K=William Kurmey, consultant   O=once

Oc=occasionally   ID=I.P.C.U.R. planning   NA=cannot be answered at this time

* In all cases save Ottawa (agreement still pending) libraries bear the whole cost of automa

at all.

# In those cases where there was some attempt to measure the benefits of the automation prog

of the methods of benefit analysis nor indication of its extent. In few cases is this ana

NB: SHERBROOKE does not evaluate benefits, enjoys good relations with its computer center,

no detail of computer center staff.

GUELPH	LAKEHEAD	LAVAL	MANITOBA	MCMASTER	MONTREAL	MT. ALLISON	UNB	OTTAWA	QUEEN'S	SASKATCHEWAN	SHERBROOKE	SIMON FRASER	S.G. WILLIAMS	TORONTO	VICTORIA	WATERLOO	WESTERN ONT.	WINDSOR	YORK
Y		Y	NO	Y		NO		NK		Y	SEE	NO		Y	Y	NO	Y	NO	Y
S	N	S	N	N	N	N	N	N	S	S	B	S	N	S	S	N	N	N	S
Y		Y						Y	N	Y	E				Y			Y	Y
E		F	EX	EX	EX			VG	VG	EX	L	P	G	P	P	G	EX	VG	G
K		O	N	N				S	N	ID	O	Vic & UBC	Y	Oc	SFU & UBC	NY	IBM	IBM	Y
38	5	25	14	30	20	3		14	24	15	W	19	15	25	24		6	16	14
40	17	50	22	30	30	0		38	34	21		29	15	50	14		24	1	20
78	22	75	36	60	50	3		52	58	36		48	30	70	38	94/112	30	17	34

by Computer Center G=good VG=very good Ex=excellent F=fair

e K=William Kurmey, consultant O=once NK=not known NY=not yet

not be answered at this time

ing) libraries bear the whole cost of automation planning, if they bear them

measure the benefits of the automation programme, there was little indication

ion of its extent. In few cases is this analysis specified in rigorous terms.

bys good relations with its computer center, consults with LAVAL, and gives

APPENDIX E: COMPUTER CENTER STAFF

LIBRARY		MANPOWER ON STAFF	SALARY SCALE	RELATIONS WITH COMPUTING CENTRE	OUTSIDE CONSULTATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional	Other
ALBERTA	3 2 1	Systems Analyst Library Analyst Programmer	$ 7,740- 9,408 8,964-10,896 10,896-13,236 11,000-12,950 5,496- 6,684 7,020- 8,532	None all done in Library	None	57	26	31
BRITISH COLUMBIA	1 1 2 9 1	Systems Analyst Library Analyst Programmer Machine Oper. Clerical	$12,000-16,000 10,000-15,000 7.000-10,000 4,000- 5,000 4,500- 6,000	Used for Research. Prog. done by Libr. staff. Co-ordinate Planning	Victoria and Simon Fraser	57	28	29
BROCK		None		Personal basis relations good	None	11	5	6

SIDE LTATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional	Other	MANPOWER IN CENTRE	SALARY RANGE	BACKGROUND OF STAFF
	57	26	31	Manager Infor Ser	11,436-13,896	B.A. Math
				Director -1	$18,600+	Ph.D. Physics
				Assoc. Director-1	13,800-18,550	M.Sc. Computer Science
				Sr. Mgr. Syst Dev.	12,600-15,324	M.A. Computer Science
				Sr. Analysts - 8	10,896-13,236	B.Sc.E.E.,M.Sc Math; 4 yrs exp.; B.Comm.; 5 yrs exp.; M.Sc. Comp. Sc.; 5yrs; B.Sc. Chem Eng; M.Sc. Elec. Eng.;
				Analysts - 9	8,964-10,896	M.Sc. Math,M.Sc. Meteorology; B.Sc. E.E.; B.Sc. Math; B.Sc. Physic; 4 years;M.Sc.Comp. Sc M.Sc. Comp Sc.; B.A. Math.
				Systems Analysts-5	7,740- 9,408	B.Sc. Math; 2 yrs; B.Sc. Electrical; 2 yrs; B.Sc. Math.
				Programmer-1	5,496- 6,684	1 yr.
				Operations Super-1	9,408-11,436	
				Consul Oper.-4	6,684- 8,532	
				Computer Oper.-5	5,496- 6,372	
				Computer Asst.-5	3,720- 4,992	
				Control Super.-1	7,368- 8,964	
				Control Clerk-1	4,740- 5,772	
				Asst. Cont. Clk-5	3,216- 4,524	
				Key Punch Super-1	5,772- 7,020	
				Key Punch Oper.-4	3,720- 5,496	
				Clerk typists-3	3,372- 4,740	
ria and Fraser	57	28	29	B.A.,B.Sc. plus prog. Experience	$ 7,800 +	4-5 Engineering 15-M.A. (Math and Physics) 13-B.A. + B.Sc.
				M.A.,M.Sc. plus several yrs	12,500 +	
				Executives	15,000 +	
	11	5	6	Programmer	$ 8,500-11,800	1- Asst. Professor Comp. Sc.
				Prof. Key Punch	3,800- 4,200	1- Ph.D. Physics Comp. Sc.
				Prof. Comp. Oper.	7,700	1- Math and Elec. Eng.
				Secretary	4,000	1- 7yrs experience. Aerodynamics
						1- Comp. Mfg. Firm
						1- University student.

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LIBRARY		MANPOWER ON STAFF	SALARY SCALE	RELATIONS WITH COMPUTING CENTRE	OUTSIDE CONSULTATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional	Other	
CALGARY * SEE ATTACHED FOR DATA PROC. CENTRE	1 1	Libr. Systems Ana. Programmer	$13,800-18,550 9,195	No relations Libr. uses services of Admin. Serv. Group.	None	29	15	14	Pr Pr Pr Pr A S K K D S C
DALHOUSIE	2 6 2	Programmer (Systems planning prog. can be paid (Programmer some experience) Machine Operator Clerks	$ 6,500- 8,000 7,500-12,000 7,500 ⁄ 3,000- 4,500 3,000- 4,500	Treated same as any education department	None	27	14	13	A M P L T O P M K K S S O
GUELPH	2 2 ½ 6 1	Systems Analyst Libr. Syst. Ana. Programmer Machine Operator Clerical	$10,000-12,500 9,000-15,000 6,000- 9,000 3,200- 4,500 3,000- 4,000	Cmtee rel. Libr. Staff on Comp. C. Cmtee also Comp. Cent. on Libr. Committees	Consulted Bill Kurmey $200.00 a day	78	38	40	

TSIDE ULTATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional	Other	MANPOWER IN CENTRE	SALARY RANGE	BACKGROUND OF STAFF
e	29	15	14	Programmer 1 Programmer 2 Programmer Analyst 1 Programmer Ana. 2 App. Analyst Super. of Data Pro. Key Punch Oper 1 Key Punch Oper 2 Data Control Senior Operator Clerical	$ 5,196- 6,396 6,288- 8,208 7,284- 9,504 8,388-10,848 8,388-10,848 8,388-10,848 3,852- 4,872 4,236- 5,370 5,784- 7,584 6,972- 9,072 3,240- 4,440	2- B.Sc. Math 1- B.Sc. Mech. Engineering 1- C.A. 1- B.Sc.(Appl) 1- B.A.; B.ED. 1- B.A. 1- (Systems Analyst) 12 yrs plus several courses 1- 2 yr. Programmer Course (S.A.I.T.)
e	27	14	13	Director Asst. Professor Managers Programmers Lecturers Tech. writers Cust. Service Consultant Production Super. Machine Operator Key Punch Super Key Punch Oper. Stenographers Secretaries Clerical	$16,000/ 10,350/ 9,600-12,200 6,500- 9,900 7,000/ 6,500/ 10,200/ 6,000- 7,600 4,100- 7,500 4,200- 4,800 3,000- 3,640 3,300- 3,900 3,600- 4,800 3,200- 3,600	Ph.D's Masters Managers many years exp. plus Data Processing to Masters degrees Programmers Bachelor's plus bachelors honours elect. Consultant Exp. in Elec. Data Processing. Operators High School Grade 11 or 12 Stenos Business Course
sulted Kurmey 0.00 a day	78	38	40		$ 7,000-20,000 8,000-17,000 8,000-14,000 13,000/ 9,000-14,000 9,000-16,000 9,000-12,000 9,000/	6- Mathematics 3- Agriculture 2- Commerce 1- Physics 2- Computer Science 3- Engineering 2- General B.A. 1- General B.Sc. 40- Clerical (Secretaries Key Punch Oper, Comp. Oper., Etc.).

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LIBRARY		MANPOWER ON STAFF	SALARY SCALE	RELATIONS WITH COMPUTING CENTRE	OUTSIDE CONSULTATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional	Other
LAKEHEAD		NONE				22	5	17
LAUREN-TIAN		Staff all employed by Computing Centre				13	12	1
LAVAL	1 3	Director Key Punch Oper.	$13,345-16,105 3,022- 4,022	Fair agreement	Not normally only once	75	25	50
MANITOBA	1 1	Systems Analyst Junior Systems Analyst (Key Punch money available but added when prog. completed)	$11,400+ 4,600- 7,440	Excellent. Centre is service to Univ.-same as library. No charge Centre res. for prog. 1 man all-oted to Libr.	None	36	14	22

IDE TATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional	Other	MANPOWER IN CENTRE	SALARY RANGE	BACKGROUND OF STAFF
	22	5	17	Comp. Control Clk	$3,180-4,200	(Not Available)
				Comp. Centre Super	4,500-6,000	
				Librarian	3,600-4,800	
				Key Punch Group Leader	3,528-4,212	
				Key Punch Oper Class A	2,964-3,360	
				Class B	3,420-3,804	
				Class C	3,456-4,020	
				Comp. Operator	4,380-5,880	
				Comp. Oper. Trainee	3,600-4,500	
	13	12	1	Director	$14,000	Masters of Business Admin. B.A.'s
				Systems Analyst	10,500-12,000	
				Key Punch	4,000- 5,200	
				Computer Oper.	5,000- 5,500	
				Programmer	6,000- 9,000	
				Analyst Prog.	9,000-10,500	
ormally y once	75	25	50	Programmer	$4,900/	Mostly mathematicians (all figures for compt. centre just a guess)
				Key Punch Oper.	3,000/	
				Supervisor staff	7,500/	
				Machine Oper.	4,000/	
	36	14	22	Programmer	$ 9,510-12,000	1- Applied Science 1- Electrical Engineer 1- Linguistics 2- Math 1- Engineering 1- Law 1- Classics and Foreign L. 2- Masters 1- Ph.D.
				Data Control	3,180- 4,644	
				Key Punch	3,852- 4,788	
				Supervisors	16,500/	

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LIBRARY		MANPOWER ON STAFF	SALARY SCALE	RELATIONS WITH COMPUTING CENTRE	OUTSIDE CONSULTATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional	Other	
MCMASTER	1/3 1/2 2 2	Systems Anal. Syst. Anal. Librarian Programmers Machine Oper.	($35,000 total expenditure)	Excellent	None	60	30	30	
MONTREAL		NONE		Excellent	None	50	20	30	Di As Pr Ar Op Ke O Se St
MOUNT ALLISON		Library uses resources of computing centre				3	3	-	D A P
NEW BRUNS-WICK		No facilities in library							
OTTAWA	2	Clerical (1/12 Syst. Ana. 1/12 Libr. Ana employed by Comp. Centre)	$ 3,480- 4,608	Very Good	Not directly meets other librarians occasionally	52	14	38	P P P D K O C C

IDE TATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional	Other	MANPOWER IN CENTRE	SALARY RANGE	BACKGROUND OF STAFF
	60	30	30			Ph.D's Masters Bachelors degrees High School Graduates
	50	20	30	Director		B.A. Math and Physics M.A. Engineers
				Asst. Director	$20,00 Maximum	
				Programmers		
				Analysts		
				Operators		
				Key Punch	3,300- 3,480	
				Office Direction		
				Secretaries		
				Stenographers	3,300- 3,480	
	3	3	-	Director	$12,000-16,000	B.A.Sc. in Eng. Physics
				Asst. Director	10,000-14,000	M.Sc. (Appl) in Elec. Eng.
				Programmer	7,500-10,000	B.Sc. in Math.
						Dr. Tremblay of Computing Centre to have info. by the 17th
directly ets other brarians casionally	52	14	38	Prog. Admin-1	$ 6,800- 9,500	Mathematicians Electrical engineers
				Prog. Admin-2	8,300-11,500	
				Prog. Admin-3	10,800-13,800	
				Director	16,300-23,600	
				Key Punch	3,400- 5,300	
				Comp. Oper-1	4,200- 5,500	
				Comp. Oper-2	5,100- 6,700	
				Comp. Oper-3	6,200- 8,600	

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LIBRARY	MANPOWER ON STAFF	SALARY SCALE	RELATIONS WITH COMPUTING CENTRE	OUTSIDE CONSULTATION	COMPUTING CENTRE TOTAL STAFF	Prof- essional	Other	
QUEENS	1 Junior Clerks 1 Intermediate Clks	$ 3,000- 3,500 3,600/	Very good	None	58	24	34	5 16 1 2
SASK - ATCHEWAN	1 Library Systems Analyst 1 Library Junior 2 Key Punch	$11,200-14,200 7,500-10,300 3,876- 5,436	Excellent Programming done by centre. 1 man loaned to library	None. But Expect a Blue Ribbon Team from I.P.C.U.R.	36	15	21	P C
SHERBROOKE	None		Good	Laval Library				
SIMON FRASER	1 Systems Analyst 1 Libr. Analyst	$ 8,888-11,928 5,720- 7,200	Progr. done by Comp. Centre	Victoria & UBC. Used I.B.M. at beginning not satisfactory.	48	19	29	
SIR GEORGE WILLIAMS	1- Systems Analyst	Employed by Comp. Centre	Good	Yes	30	15	15	M M K C P S

IDE TATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional	Other	MANPOWER IN CENTRE	SALARY RANGE	BACKGROUND OF STAFF
	58	24	34	Sr. 5- Managers 16-Programmers 1- Systems Anal. 2- Consultants	$13,000-19,000 5,000-10,500 9,000-11,800 11,000-15,000	7- B.A.'s 7- Bachelor of Science 1- Master of Bus. Admin. 1- Bachelor of Engineering
. But ct a Ribbon from C.U.R.	36	15	21	Professional Clerical	$ 6,000-12,000+ 4,212- 7,200	9- Gr. XII + on job training 5- B.A. Math 2- Engineering Elec. 1- Business Admin.
Library				(It has been impossible for them to give us any figures at this time they will try to do so within next week or so and mail to us)		
oria & Used M. at nning satisfac- ry.	48	19	29		$ 6,600-12,600	Statistician Mathematician Graduates B.C. Inst. of Technology.
	30	15	15	Managers Machine Oper Key Punch Oper. Clerical Programmer Systems Analyst	$15,000 5,000- 6,000 4,500- 6,000 4,000- 5,500 6,000- 9,000 9,000-13,000	Univ. Comp. Degrees Junior College Clerical - High School Programmers and Systems Anal. univrsity degrees and some with experience.

LIBRARY		MANPOWER ON STAFF	SALARY SCALE	RELATIONS WITH COMPUTING CENTRE	OUTSIDE CONSULTATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional	Other
TORONTO	2 13 2 2	Key Punch Oper. Machine Operator Programmers Systems Librarian	$3,600- 4,450 4,750- 8,000 4,750-11,150 7,300/	Prog. done by Library	Occasionally	70	25	50
TRENT		NO COMPUTING FACILITIES RECORDS DONE BY G.C.E.						
VICTORIA	1 1 1	Systems Analyst Programmer Key Punch	$10,000/ 3,732/ 5,000-6,100	All prog. done by Computing Centre	U.B.C. and Simon Fraser	38	24	14
WATERLOO	1	Systems Research Assistant	$5,210/	Largely done by Comp. Centre Mr. Bean Asst. Libr. does some prog. Relations good.	Not as yet	(FOR COMPUTING CENT		
WESTERN ONT.	1 6 2 1	Libr. Analyst 1/3 Systems Ana. 1 Programmer Machine Operators Junior Clerks Senior Clerk	$ 7,600- 8,500 Empl. by comp. c. 3,205- 4,450 3,700- 5,200 4,450- 6,300	Excellent. Systems Libr. meets with them daily	Yes- I.B.M. with Data Proc. & Syst. Dev.	30	6	24

TSIDE SULTATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional	Other	MANPOWER IN CENTRE	SALARY RANGE	BACKGROUND OF STAFF
asionally	70	25	50	5- Managers Programmer Operational Staff Clerical	$15,000-20,000 8,000-15,000 5,000-12,000 4,200- 6,000	Mathematicians Applied Mathematicians Engineers Engineering Sciences Social Science & Humanities
.C. and on Fraser	38	24	14	Junior Programmer Prog. Analyst Sr. Programmer Supervisor	$ 5,820- 7,740 5,520- 8,920 8,500-10,800 9,600/	1- No degree 5- B.A.'s 3- B.Sc. Math & Physics 3- B.Sc. Math 2- M.Sc. Statistics 1- M.Sc. Psychology 1- M.Sc. Physics 1- M.Sc. Math 2- M.Sc. Engineering 1- Ph.D. Chemistry 1- Ph.D. Physics
as yet	(FOR COMPUTING CENTRE SEE ATTACHED LIST)					
- I.B.M. h Data c. & t. Dev.	30	6	24	4- Systems Anal. 1- Asst. Director 1- Director	$ 8,000-10,000 15,000-16,000 19,000-21,000	1- Chartered Accountant 1- Master of Bus. Admin.

LIBRARY		MANPOWER ON STAFF	SALARY SCALE	RELATIONS WITH COMPUTING CENTRE	OUTSIDE CONSULTATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional
WINDSOR	1	Systems Analyst	$10,500/	Partly Centre and partly systems analyst. Relations very good	Yes. Not systematic. Have resident I.B.M. man in accounts	17	16
	1	Libr. Analyst	16,000/-				
	2	Machine Operator	4,200-5,200				
	1	Clerk	4,000				
YORK	1	Systems Analyst	$10,000-12,000	Relations good	yes - informal discussions	34	14
	1	Libr. Analyst	10,000-12,000				
		Programmer	Not empl. by library				
	1	Asst. to Libr. systems Analyst	10,000-12,000				
	2½	Clerks	3,500- 5,000				

UTSIDE SULTATION	COMPUTING CENTRE TOTAL STAFF	Prof-essional	Other	MANPOWER IN CENTRE	SALARY RANGE	BACKGROUND OF STAFF
. Not tematic. e resident .M. man accounts	17	16	1	Director Programmer Oper. Staff Clerical	 $ 7,000-10,000 5,000-10,000 3,500	7- B.A.'s 3 have 1 1/2 university study
. - informal cussions	34	14	20	Programmer Data Control Key Punch Supervisor Systems Analyst	$ 5,500-12,000 5,000-10,000 7,000(just a guess) 10,000-14,000	2- Ex. Teachers. 4- Computer Science 1- Mathematician

1 yr. experience as systems analyst
M.Math - 3 yrs. on job $10,500

(3) Associate Consultants (2)
B.Sc. - 1 yr. on job $8,000
B.Sc. - 1 yr. on job $7,300

II. DATA PROCESSING:

(2) Managers (3)
Ph.D. - 2 yrs. on job $20,000
6 yrs. experience as professor and systems research
Ph.D. - 3 yrs. on job $19,300
5 yrs. experience on computer research
M.A. - 3 months on job $16,000
2 yrs. experience in programming supervision

(3) Supervisors of Systems Analysis (2)
B.A.Sc. - 2 yrs. on job $14,000
M.A. - 2 yrs. on job $13,200

(4) Senior Systems Analysts ([illegible])
M.A. - 3 yrs. on job $13,[illegible]
M.A. - 3 yrs. on job $12,000
M.A. - 3 yrs. on job $11,600
M.A. - 1 yr. on job $ 9,500

(5) Junior Systems Analysts (7)
- no university - 4 yrs. on jobs $9,100
  2 yrs. experience as operator
- 1 yr. university -2 yrs. on job $9,100
- B.A. - 2 yrs. on job $9,100
  2 yrs. experience programming
- B.A. - 6 months on job $8,400
- 2 yrs. university -2 yrs. on job $8,100
- B.A. 1 yr. on job $8,000
  6 months experience programming
- B.A. - 2 yrs. on job $7,400

(6) Supervisor of Programming (1)
- no university - 3yrs. on job $15,000
  12 years experience as programmer and supervisor

UNIVERSITY OF WATERLOO · COMPUTING CENTRE

I. CONSULTING:

(1) Senior Consultant (1)
M.A. - 1 yr. on job $10,400

(2) Consultants (2)
M.Sc. - 1 yr. on job $10,600
1 yr. experience as systems analyst
M.Math - 3 yrs. on job $10,500

(3) Associate Consultants (2)
B.Sc. - 1 yr. on job $8,000
B.Sc. - 1 yr. on job $7,300

II. DATA PROCESSING:

(2) Managers (3)
Ph.D. - 2 yrs. on job $20,000
6 yrs. experience as professor and systems research
Ph.D. - 3 yrs. on job $19,300
5 yrs. experience on computer research
M.A. - 3 months on job $16,000
2 yrs. experience in programming supervision

(3) Supervisors of Systems Analysis (2)
B.A.Sc. - 2 yrs. on job $14,000
M.A. - 2 yrs. on job $13,200

(4) Senior Systems Analysts (4)
M.A. - 3 yrs. on job $13,400
M.A. - 3 yrs. on job $12,000
M.A. - 3 yrs. on job $11,600
M.A. - 1 yr. on job $ 9,500

(5) Junior Systems Analysts (7)
- no university - 4 yrs. on jobs $9,100
2 yrs. experience as operator
- 1 yr. university -2 yrs. on job $9,100
- B.A. - 2 yrs. on job $9,100

(7) Senior Programmers (6)
- Technical 3 yr. Diploma - 2 yrs. on job $11,600
  6 yrs. experience as programmer and technological engineer
- no university - 3 yrs. on job $11,000
  5 yrs. experience as programmer
- no university - 2 yrs. on job $11,000
  11 yrs. experience as programmer and operator
- B.Sc. - 2 yrs. on job $9,900
  2 yrs. experience as programmer
- M.A. - 3 yrs. on job $9,900
- B.Sc. - 2 yrs. on job $9,700

(8) Junior Programmers (5)
- B. Math - 8 months on job $8,100
- B.Sc. - 3 months on job $8,000
- B.Sc. - 3 months on job $8,000
  2 yrs. experience as programmer
- 1 yr. university, 2 yrs. on job $7,600
  1 yr. experience as programmer
- B.Math. - 6 months on job $5,700

(9) Supervisor of Operation (2)
- no university, 3 yrs. on job $14,400
  3 yrs. experience as programmer
- B.Math., 4 months on job $8,000

(10) Senior Computer Operators (8)
$5,000 - $9,000

(11) Junior Computer Operators (6)
$4,000 - $5,000

(15) Senior Operator U/R Equipment (1)
$5,700

(17) Keypunch Supervisor (1)
$5,000

(18) Senior Keypunch Operators (5)
$4,300 - $5,000

- no university, 3 yrs. on job $14,400
3 yrs. experience as programmer
- B.Math., 4 months on job $8,000

(10) Senior Computer Operators (8)
$5,000 - $9,000

(11) Junior Computer Operators (6)
$4,000 - $5,000

(15) Senior Operator U/R Equipment (1)
$5,700

(17) Keypunch Supervisor (1)
$5,000

(18) Senior Keypunch Operators (5)
$4,300 - $5,000

(19) Junior Keypunch Operators (6)
$3,300 - $4,100

(20) Supply Librarians (2)
- B.A. - 1 yr. on job $7,300
- B.A. - 1 yr. on job $6,300

III. ENGINEERING (2) Senior Engineer (1)
-M.A.Sc. - 1 yr. on job $9,500

IV. INSTRUCTION

(2) Instructors (3)
- B.A. - 6 months on job $8,000
- B.A. - 1 yr. on job $7,700
- B.A. - 1 yr. on job $7,200

V. OPERATIONS RESEARCH

(2) Operations Research (2)
- M.A. - 3 months on job $12,500
  5 yrs. experience as analyst and programmer
- Ph.D. - 3 months on job $11,000

4 administrators $6,000 - $9,500
8 secretaries
23 summer employees
12 part-time employees

The University of Calgary

Data Centre Personnel

Job Classifications	Salary Ranges	# of Encumbents	
Manager		1	
Manager, Information Systems	$12,150-15,325/annum	1	
Operations Manager	$12,150-15,325/annum	1	
Scientific Programmer III	$10,300-13,350/annum	5	1. 2. 3. 4. 5.
Scientific Programmer II	$9,000-11,850/annum	4	1. 2. 3. 4.
Scientific Programmer I	$524-685/month	3	1. 2. 3.
Applications Analyst	$699-904/month	1	
Admin. Programmer II	$524-684/month	1	
Work Station Supervisor	$626-829/month	1	
Services Supervisor	$626-829/month	1	
Shift Supervisor	$578-765/month	3	
Computer Operator II	$498-623/month	2	
Computer Operator I	$412-517	6	
Computer Operator Trainee	$340-412	3	

The University of Calgary

Data Centre Personnel

	# of Encumbents	Backgrounds
	1	
um	1	B.Sc., M.Sc. (Information Science)
um	1	Tab Course Diploma
um	5	1. B.Sc. (Physics), M.Sc. (Meteorology) 2. B.Sc. (Engineering) 3. B.A. (Philosophy) 4. B.Sc. (Mathematics) 5. B.Sc. (Physics), M.Sc. (Physics), Ph.D. (Chemical Physics)
m	4	1. B.A. (Honours) 2. B.Sc. (Mathematics) 3. B.Sc. (Agriculture), M.Sc. (Agr. Economics) 4. B.Sc. (Mathematics), M.Sc. (Computing Science)
	3	1. B.Sc. (Mathematics) 2. B.A. 3. B.Sc. (Mathematics)
	1	Engineering degree
	1	See attached job description
	1	" " " "
	1	" " " "
	3	" " " "
	2	" " " "
	6	" " " "
	3	" " " " (unavailable)

Job Classifications	Salary Ranges	# of Encumbents
Work Station Operator	$412-517/month	1
Dispatch Clerk	$257-317/month	1
Utility/Driver	$391-451/month	2
Library Assistant II	$353-448/month	1
Keypunch Operator I	$321-406/month	2
Secretary Stenographer II	$412-517/month	1
Secretary Stenographer I	$353-448/month	1
Clerk Typist II	$289-364/month	2
Clerk I	$257-317/month	2
	Total	46

August 15, 1969.

Ranges	# of Encumbents	Backgrounds
/month	1	See attached job description (unavailable
/month	1	" " " " "
/month	2	" " " " "
/month	1	" " " "
/month	2	" " " "
/month	1	" " " "
/month	1	" " " "
/month	2	" " " "
/month	2	" " " "
Total	46	

APPENDIX F

This is the summary which represents our interpretation of the data compiled from the questionnaire which was sent to all universities. We apologize for any misinterpretation of data. A sample of the questionnaire is added in Appendix I. Errors and omissions should be forwarded to the AUCC Library.

LIBRARY	PERCENTAGE OF AUTOMATION COSTS CHARGED TO LIBRARY			EXTENT & METHOD OF MEASUREMENT OF BENEFITS OF AUTOMATION PROGRAMME	POSSIBILITIES FOR COOPERATIVE ARRANGEM		
	DEVELOPMENT COSTS	PROGRAMMING COSTS	OPERATING COSTS		JOINTLY OPERATED LOCAL, REGIONAL, AND NATIONAL CENTRES	DEVELOPMENT OF COMMUNICATION NETWORKS	OTHER ARRANGEMENTS
ALBERTA	100	100		NONE	NATIONAL CENTRE TO HELP IN THE FIELD OF LIBRARY AUTOMATION	PROMPT LOCATION AND ACCESS TO REMOTE CIRCULATION & CAT RECORDS	STANDARDIZATION IN LIBRARY AUTOMATION PROGRAMMES
BRITISH COLUMBIA	100	100	100	IMPROVED SERVICES, EXTRA CAPACITY	NOT FEASIBLE WITHOUT ACCEPTED STANDARDS AND SYSTEM REQUIREMENTS	PREMATURE; MORE DEVELOPMENT WITHIN EACH INSTITUTION AND ACCEPTED STANDARDS IN SYSTEMS AND REQUIREMENTS	BY COOPERATIVE SYSTEM DESIGN TO ESTABLISH AGREEMENT FOR EACH SYSTEMS AREA
BROCK				SAVING LABOUR COST ACCURACY INCREASES SERVICE	ACQUISITIONS, CATALOUING, SERIALS	INTERLIBRARY LOAN	
CALGARY					WOULD PROVIDE IMPROVED ACCESS TO LIBRARY RESOURCES AND INFORMATION ABOUT LIBRARY RESOURCES		SYSTEMS ANALYSIS, PLA NING AND DEVELOPMENT WOULD BE FACILITATED B ACCESS TO PROGRAMMES AND SYSTEMS DESIGN INFORMATION FOR OPERATIONAL SYSTEMS
DALHOUSIE	100	100	100	IMPROVED SERVICES	PROGRAMMING TO USE MARC TAPES AND ENLARGEMENT OF THE DATA BASE	ON LINE QUICK RESPONSE TIME TO SPECIFIC REQUESTS	
GUELPH	100	100		SAVING LABOUR COST	EACH LIBRARY MUST MEET ITS NEEDS BEFORE PARTICIPATING IN OTHER SCHEMES	COMMON COMPATIBLE DATA BASE	EXCHANGE OF PROGRAMM
LAKEHEAD					NONE		
LAVAL	100	100	100	SAVING LABOUR COST BETTER SERVICE	HELP IN THE FIELD OF LIBRARY AUTOMATION	ACCESS TO DATA BASE	
MANITOBA	0	0	0		DOUBTFUL FOR HOUSEKEEPING ROUTINE, BUT WILLING TO CONSIDER PROPOSALS. COULD BE HELPFUL WITH BIBL. INFO.	USEFUL	A COORDINATED R.P.D PROGRAMME FOR BIBL. INFO. AND S.D. I
McMASTER		100	100	NONE	COST SHARING OF MORE POWERFUL HARDWARE AND MORE HIGHLY QUALIFIED STAFF	IN FAVOUR	COORDINATION OF A CENTRAL AGENCY
MONCTON							
MONTREAL (FAC. SC. SOC)							WILL ACCEPT ANY INTE ESTING COOPERATIVE ARRANGEMENTS
MOUNT ALLISON	NONE	NONE	NONE	UNDER STUDY	WOULD LIKE TO PARTICIPATE IN REGIONAL COOPERATION	NONE	NONE
NEW BRUNSWICK							
OTTAWA					COOPERATION WITH ONTARIO COUNCIL OF UNIVERSITY LIBRARIANS	TELEX AND FACSIMILE TRASMISSION	TELEX; INTERUNIVERSITY TRANSIT SYSTEM MARC TAPES FROM TORONTO
QUEEN'S	0	0	0	MANUAL VS AUTOMATED SYSTEM COSTS. VALUE OF ADDITIONAL INFO.	WILL BENEFIT FROM OCUL BIBLIOGRAPHIC CENTRE	INCREASED USE OF TELEPHONE AND TELEX	

OMATION OF PROGRAMME	POSSIBILITIES FOR COOPERATIVE ARRANGEMENTS			PRESENT COOPERATIVE ARRANGEMENTS	ADDITIONAL COMMENTS	PRESENT APPLICATION
	JOINTLY OPERATED LOCAL, REGIONAL, AND NATIONAL CENTRES	DEVELOPMENT OF COMMUNICATION NETWORKS	OTHER ARRANGEMENTS			
	NATIONAL CENTRE TO HELP IN THE FIELD OF LIBRARY AUTOMATION	PROMPT LOCATION AND ACCESS TO REMOTE CIRCULATION & CAT RECORDS	STANDARDIZATION IN LIBRARY AUTOMATION PROGRAMMES	NONE	LACK OF HARDWARE SUITED TO LIBRARIES. SHORTAGE OF SKILLED STAFF	ACQUISITIONS & BIBLIOGRAPH [illegible] CATALOGUING, CIRCULATION,
S,	NOT FEASIBLE WITHOUT ACCEPTED STANDARDS AND SYSTEM REQUIREMENTS	PREMATURE;MORE DEVELOPMENT WITHIN EACH INSTITUTION AND ACCEPTED STANDARDS IN SYSTEMS AND REQUIREMENTS	BY COOPERATIVE SYSTEMS DESIGN TO ESTABLISH AGREEMENT FOR EACH SYSTEMS AREA	QUARTERLY MEETINGS BETWEEN B.C. LIBRARIES	DESIGN AND INSTALLATION OF SPECIALIZED SYSTEMS THAT PROVIDE FOR SO-CALLED UNIQUE REQUIREMENT CAUSES DUPLICATION OF EFFORT	SERIALS, CIRCULATION, ACQUISITIONS, COURSE READING LISTS, CATALOGUE/SHELF LISTS, GENERAL PURPOSE CATALOGUE/INDEX SYSTEM, RECORDINGS CATALOGUE AND CLASSIFICATION SYSTEM, ACCESSION LISTS, GOVT PUBS. CATALOGUE, USE STUDIES, DATA MANAGEMENT SYSTEM.
ST ES	ACQUISITIONS, CATALOUING, SERIALS	INTERLIBRARY LOAN		NONE	EQUIPMENT LIMITATIONS LIMITED BY MANPOWER	CIRCULATION GOVERNMENT DOCUMENTS, SERIALS
	WOULD PROVIDE IMPROVED ACCESS TO LIBRARY RESOURCES AND INFORMATION ABOUT LIBRARY RESOURCES		SYSTEMS ANALYSIS, PLANNING AND DEVELOPMENT WOULD BE FACILITATED BY ACCESS TO PROGRAMMES AND SYSTEMS DESIGN INFORMATION FOR OPERATIONAL SYSTEMS	NONE	TWO FEW STUDIES; EQUIPMENT NOT DESIGNATED FOR LIBRARY USE; QUALIFIED MANPOWER SCARCE	ACCOUNTS, PERSONNEL RECORDS, SERIALS
ES	PROGRAMMING TO USE MARC TAPES AND ENLARGEMENT OF THE DATA BASE	ON LINE QUICK RESPONSE TIME TO SPECIFIC REQUESTS		NOVA SCOTIA COUNCIL ON LIBRARY RESOURCES REGIONAL SCIENTIFIC NETWORK		CATALOGUING, CIRCULATION, ACQUISITIONS, SERIALS
OST	EACH LIBRARY MUST MEET ITS NEEDS BEFORE PARTICIPATING IN OTHER SCHEMES	COMMON COMPATIBLE DATA BASE	EXCHANGE OF PROGRAMMES	KEEP IN TOUCH WITH OTHER AUTOMATED LIBRARIES	NEED FOR EQUIPMENT DESIGNED FOR LIBRARIES TRAINED MANPOWER NEEDED	ACQUISITIONS, CATALOGUING, CIRCULATION, GOVERNMENT DOCUMENTS, SERIALS
	NONE			NONE	GUIDANCE NEEDED ENSURE COMPATIBILITY	
OST	HELP IN THE FIELD OF LIBRARY AUTOMATION	ACCESS TO DATA BASE		EXCHANGE OF PROGRAMMES WITH OTHER LIBRARIES	ESTABLISHMENT OF STANDARDS IN LIBRARY AUTOMATION	SUBJECT HEADINGS, SERIALS, CIRCULATION, CATALOGUING, STATUTES, INDEXING INFO, RETRIEVAL
	DOUBTFUL FOR HOUSEKEEPING ROUTINE, BUT WILLING TO CONSIDER PROPOSALS. COULD BE HELPFUL WITH BIBL. INFO.	USEFUL	A COORDINATED R.P.D PROGRAMME FOR BIBL., INFO. AND S.D.I	NONE		CIRCULATION, ACQUISITIONS
	COST SHARING OF MORE POWERFUL HARDWARE AND MORE HIGHLY QUALIFIED STAFF	IN FAVOUR	COORDINATION OF A CENTRAL AGENCY		UNSUITABLE COMPUTER. NEED MORE PEOPLE TRAINED IN SYSTEMS. EXCHANGE OF INFO.	ACQUISITIONS ACCOUTING [illegible] CIRCULATION, SERIALS HOLDINGS, ACCESSIONS LISTS, HOLDINGS, SPEC BIBLIOGRAPHIES
			WILL ACCEPT ANY INTERESTING COOPERATIVE ARRANGEMENTS	NONE	WOULD LIKE TO HAVE MORE REPORTS ON AUTOMATION IN CANADIAN LIBRARIES	CIRCULATION
	WOULD LIKE TO PARTICIPATE IN REGIONAL COOPERATION	NONE	NONE	NONE		ACQUISITIONS
						INDEXING
	COOPERATION WITH ONTARIO COUNCIL OF UNIVERSITY LIBRARIANS	TELEX AND FACSIMILE TRASMISSION	TELEX; INTERUNIVERSITY TRANSIT SYSTEM; MARC TAPES FROM TORONTO			ACQUISITIONS
MATED VALUE NFO.	WILL BENEFIT FROM OCUL BIBLIOGRAPHIC CENTRE	INCREASED USE OF TELEPHONE AND TELEX		NONE	MORE SHOULD BE DONE TO SHARE MANPOWER, PROGRAMS, & DEVELOPMENT COSTS	GOVERNMENT DOCUMENTS, USING GUELPH PROGRAMS

LIBRARY	PERCENTAGE OF AUTOMATION COSTS CHARGED TO LIBRARY			EXTENT & METHOD OF MEASUREMENT OF BENEFITS OF AUTOMATION PROGRAMME	POSSIBILITIES FOR COOPERATIVE ARRANGEMENTS			PRESENT COOPERATIV ARRA
	DEVELOPMENT COSTS	PROGRAMMING COSTS	OPERATING COSTS		JOINTLY OPERATED LOCAL, REGIONAL, AND NATIONAL CENTRES	DEVELOPMENT OF COMMUNICATION NETWORKS	OTHER ARRANGEMENTS	
SASKATCHEWAN (REGINA)	100	100	100	NOT DETERMINED	REFER TO IPCUR FEASIBILITY STUDY FOR THE WESTERNUNIVERSITY STUDY LIBRARIES			USE OF SFU ACQUIS TIONS SYSTEM; A SASKATOON CAMPU
SASKATCHEWAN (SASKATOON)	100	100	100	TOTAL COST LABOUR SPACE ADDED SERVICE	SHARED DATA BASE FOR CATALOGUING AND REFERENCE			MARC
SHERBROOKE					CANADIAN UNION CATALOGUE	TELEX, TRANSMISSION NETWORK		
SIMON FRASER	0	0	0	COST/BENEFIT ANALYSIS				
SIR GEORGE WILLIAMS	100	100	100					
TORONTO	100	100	100	FULL EXTENT. MEASURED BY TECHNICAL AND ADMINISTRATIVE JUDGEMENT	UNDER STUDY	DEPENDS ON WHAT KIND OF NETWORKS BECOME FEASIBLE	MACHINE - READABLE CAN. UNION CAT. AND U.S. NATIONAL UNION CAT.	
VICTORIA	100			PLANNING	WILL COOPERATE	WILL COOPERATE	EXCHANGE OF INFORMATION ON PROGRESS OF AUTOMATION IN CANADIAN LIBRARIES	QUARTERLY MEETIN WITH OTHER LIBRA EXCHANGE OF DOCUMENTATION
WATERLOO			0	NONE	DISTRIBUTION OF MARC DATA			
WESTERN ONTARIO	100	100	100		PLANNING A CENTRE FOR ONTARIO LIBRARIES			
WINDSOR	0	0	0		ACQUISITION OF SPECIALIZED COLLECTIONS, UNION CATALOGUE			I.U.T.S.
YORK	0	0	0	SERVICE	WOULD LIKE TO HAVE ACCESS TO A COMMON DATA BASE VIA TERMINAL	FOR THE EXCHANGE OF BIBLIOGRAPHIC INFORMATION	COOPERATIVE PROGRAMMING FOR THE USE OF MARC II TAPES	LOCAL COOPERATI EXCHANGE OF DAT FILES, PROGRAMM AND INFORMATIO

POSSIBILITIES FOR COOPERATIVE ARRANGEMENTS			PRESENT COOPERATIVE ARRANGEMENTS	ADDITIONAL COMMENTS	PRESENT APPLICATION
JOINTLY OPERATED LOCAL, REGIONAL, AND NATIONAL CENTRES	DEVELOPMENT OF COMMUNICATION NETWORKS	OTHER ARRANGEMENTS			
REFER TO IPCUR FEASIBILITY STUDY FOR THE WESTERN UNIVERSITY STUDY LIBRARIES			USE OF SFU ACQUISITIONS SYSTEM; ALSO SASKATOON CAMPUS		
SHARED DATA BASE FOR CATALOGUING AND REFERENCE			MARC	LIMITATIONS OF MANPOWER AND FINANCES	ACQUISITIONS, CATALOGUING, CIRCULATION
CANADIAN UNION CATALOGUE	TELEX, TRANSMISSION NETWORK				SUBJECT HEADINGS
					ACQUISITIONS, CATALOGUING, LOANS, INVENTORY, MAPS, CATALOGUE SYSTEM, OUT OF PRINT SYSTEM, PAMPHLETS, SERIALS
					SERIALS
UNDER STUDY	DEPENDS ON WHAT KIND OF NETWORKS BECOME FEASIBLE	MACHINE - READABLE CAN. UNION CAT. AND U.S. NATIONAL UNION CAT.		EMPHASIS PLACED ON ACHIEVING OBJECTIVES, NOT ON MECHANIZING PRESENT ACTIVITIES	MARC, CIRCULATION, SERIALS
WILL COOPERATE	WILL COOPERATE	EXCHANGE OF INFORMATION ON PROGRESS OF AUTOMATION IN CANADIAN LIBRARIES	QUARTERLY MEETINGS WITH OTHER LIBRARIES. EXCHANGE OF DOCUMENTATION		CATALOGUING, CIRCULATION, HOLDINGS, RESERVE READINGS LISTS
DISTRIBUTION OF MARC DATA					CLASSIFICATION, DESIDERATA FILE, REFERENCE LISTS, SERIALS
PLANNING A CENTRE FOR ONTARIO LIBRARIES					ACQUISITIONS CIRCULATIONS SERIALS
ACQUISITION OF SPECIALIZED COLLECTIONS, UNION CATALOGUE			I.U.T.S.	CENTRAL CONSULTING SERVICE IN LIBRARY AUTOMATION WOULD BE DESIRABLE	ACQUISITION CATALOGUING (MARC) SERIALS
WOULD LIKE TO HAVE ACCESS TO A COMMON DATA BASE VIA TERMINAL	FOR THE EXCHANGE OF BIBLIOGRAPHIC INFORMATION	COOPERATIVE PROGRAMMING FOR THE USE OF MARC II TAPES	LOCAL COOPERATION: EXCHANGE OF DATA FILES, PROGRAMMES AND INFORMATION	LOCAL COOPERATION: EXCHANGE OF DATA FILES, PROGRAMMES AND INFORMATION	ACCESSION LISTS, ACQUISITIONS, INDEXING, CIRCULATION, MARC.II, S.D.I. PHONO. REC. CAT. RESERVED BOOKS LISTS

LIBRARY	FEASIBILITY STUDIES					STUDY STAFF			EQUIPMENT							INPUTS	
											OWNERSHIP						
	NOT PLANNED	PLANNED	IN PROGRESS	COMPLETE	REPORTS AVAILABLE ?	LIBRARIANS ON STAFF	SYSTEMS ANALYSIS ON STAFF	OUTSIDE CONSULTANTS	TYPE OF COMPUTER	CAPACITY OF CENTRAL PROCESSOR	LIBRARY	UNIVERSITY	OTHER	HOURLY CHARGE	TIME AVAILABLE TO LIBRARY	MACHINE READABLE INPUTS FROM OUTSIDE SOURCES NOW USED	MACHINE READABLE INPUTS THAT COULD USED
ALBERTA		✓			N		✓		IBM 360/40	128K		✓		NONE	4 HRS PER DAY	NONE	
BRITISH COLUMBIA			✓		N	✓	✓		HONEYWELL H200 IBM 360/67	32 K CHAR.		✓ ✓		NONE $ 250 CPU HRS	200 HRS PER MO	NONE	
BROCK		✓			Y	✓			IBM 360/20	16 K		✓			2 HRS PER DAY	NONE	
CALGARY			✓		N	✓	✓		IBM 360/50	512 K		✓		$ 100	NOT SPECIFIED EXPECTED COST 1969/70 $ 30,000	EXPERIMENTING WITH MARK TEST TAPE	
DALHOUSIE				✓	Y	✓			IBM 360/50	128K		✓		$ 25	AS REQUIRED	NONE	
GUELPH				✓	Y	✓	✓	✓	IBM 360/50	256K		✓		NONE	45 HRS PER MO	NONE	MARC
LAKEHEAD	✓								IBM 360/40	256K		✓				NONE	
LAVAL			✓	✓	Y	✓	✓	✓	IBM 360/50	256K		✓		$ 180	35 HRS PER WK.	NONE	MARC SDI (NRC) CANADIANA
MANITOBA			✓		N		✓		IBM 360/65	512K		✓			AS REQUIRED	NONE	
McMASTER		✓					✓		IBM 7040	32 K WORDS		✓		$ 30	7 HRS PER WK	NONE	
MONCTON		✓			N		✓					✓					
MONTREAL (FAC SC SOC)		✓			N	✓			CONTROL DATA			✓					
MOUNT ALLISON			✓		N	✓	✓		IBM 1130	32 K		✓				NONE	
NEW BRUNSWICK			✓														
OTTAWA		✓			N	✓	✓		IBM 360/65	512 K		✓		$ 525		NONE	
QUEEN'S		✓				✓			IBM 360/50	512 K		✓			NO LIMIT	NONE	MARC CANADIANA
SASKATCHEWAN (Regina)		✓			Y	✓			IBM 360/40	128 K		✓				NONE	MARC
SASKATCHEWAN (Saskatoon)			✓		N	✓	✓		IBM 360/50	384K		✓		$ 60	AS REQUIRED	MARC	UNION LISTS OF SERIALS FROM NRC & NAT. LIB.
SHERBROOKE			✓		N	✓			IBM 360/40	252K		✓		$ 120			MARC CANADIANA
SIMON FRASER			✓		N	✓	✓		IBM 360/50	256K + LCS		✓		0	25% OF 168 HOUR WEEK	NONE	
SIR GEORGE WILLIAMS			✓		N		✓		CONTROL DATA 3300	81K WORDS		✓		$ 300		NONE	
TORONTO				✓	Y	✓			SDS SIG MA 7	40K WORDS		✓			AS REQUIRED	NONE	ANY
VICTORIA			✓		Y	✓	✓		IBM 360/44	256K		✓		$ 77	AS REQUIRED	NONE	UBC SERIAL FILE
WATERLOO	✓								IBM 360/75	2000 K		✓		NONE BUT 62¢ PER UNIT OVERTIME	2 HRS PER MO.	NONE	
WESTERN ONTARIO			✓		Y	✓			IBM 360/40	128K		✓		$ 50	15 HRS PER WEEK PLUS WEEKEND TIME AS REQUIRED	NONE	ANY
WINDSOR			✓			✓	✓		IBM 360/50	256K		✓		$ 200	AS REQUIRED	MARC	
YORK				✓	N	✓	✓		IBM 360/50	256K		✓		0	AS REQUIRED		ANY

EQUIPMENT						INPUTS		MANPOWER FOR AUTOMATION DEVELOPMENT													
PACITY OF CENTRAL PROCESSOR	OWNERSHIP			HOURLY CHARGE	TIME AVAILABLE TO LIBRARY	MACHINE READABLE INPUTS FROM OUTSIDE SOURCES NOW USED	MACHINE READABLE INPUTS THAT COULD BE USED IF AVAILABLE	SYSTEMS ANALYSTS		SYSTEMS ANALYST-LIBRARIANS		PROGAMMERS		PROGRAMMER LIBRARIAN		MACHINE OPERATORS		CLERKS		OTHER	
	LIBRARY	UNIVERSITY	OTHER					NOW	IN 5 YEARS	NOW	IN 5 YEARS	NOW	IN 5 YEARS	NOW	IN 5 YEARS	NOW	IN 5 YEARS	NOW	IN 5 YEARS	NOW	IN 5 YEARS
8K		✓		NONE	4 HRS PER DAY	NONE		3	5	2	2	1	5			4	6 +	2	4		
2 K AR.		✓ ✓		NONE $ 250 CPU HRS	200 HRS PER MO.	NONE		1	1	1	2	2	4			9	12	1	2		
5 K		✓			2 HRS PER DAY	NONE												1			
2 K		✓		$ 100	NOT SPECIFIED EXPECTED COST 1969/70 $ 30,000	EXPERIMENTING WITH MARK TEST TAPE				1		1									
8 K		✓		$ 25	AS REQUIRED	NONE			1		1	2	1			6	12	2	4		
6K		✓		NONE	45 HRS PER MO.	NONE	MARC	1		1		1 1/3			5		1				
6K		✓				NONE															
6K		✓		$ 180	35 HRS PER WK.	NONE	MARC SDI (NRC) CANADIANA	4		1						13		9		3	
2K		✓			AS REQUIRED	NONE		2	2												
2 K RDS		✓		$ 30	7 HRS PER WK	NONE		1/3	1	1/2	1	2	3			2					
		✓																			
		V																			
2 K		✓				NONE				1		1/2						2			
2 K		✓		$ 525		NONE		1/12			1	1/12	1					2	6		
2 K		V			NO LIMIT	NONE	MARC CANADIANA		1		1		2 TO 3		2 TO 3			2	5 TO 10		
28 K		✓				NONE	MARC	1/10	?	1	2	1/3	?					2 1/4			
84K		✓		$ 60	AS REQUIRED	MARC	UNION LISTS OF SERIALS FROM NRC & NAT. LIB.	1	2	1		1/2	1			1 1/2	5				
52K		✓		$ 120			MARC CANADIANA	1	1		2		1						5		
56K LCS		✓		0	25% OF 168 HOUR WEEK	NONE		1	3	1/2	1 1/2	3	5			4	?	1	?		
81K RDS		✓		$ 300		NONE		1													
40K RDS		✓			AS REQUIRED	NONE	ANY			3		14				2		13			
256K		✓		$ 77	AS REQUIRED	NONE	UBC SERIAL FILE	1	1		1	1	3			4	6	1/2	1		
00K		✓		NONE BUT 62¢ PER UNIT OVERTIME	2 HRS PER MO.	NONE				1											
28K		✓		$ 50	15 HRS PER WEEK PLUS WEEKEND TIME AS REQUIRED	NONE	ANY	1/3	1	1	2	1	3			6	8	3	4		
56K		✓		$ 200	AS REQUIRED	MARC		1		1						2		1			
56K		✓		0	AS REQUIRED		ANY	1	2	1	2	1	2					2 1/2	5	1	2

APPLICATION	LIBRARY	STATUS OF APPLICATION						OPERATIONAL STATUS				MACHINE LANGUAGE	PROGRAMMING			MEMORY USED
		SYSTEM ANALYSIS		PROGRAMMING		IMPLEMENTATION										
		BEGINNING DATE	COMPLETION DATE	BEGINNING DATE	COMPLETION DATE	BEGINNING DATE	COMPLETION DATE	FULLY OPERATING	PARTLY OPERATING	UNDER REVISION	NOT OPERATING		LIBRARY STAFF	COMPUTER CENTRE STAFF	OUTSIDE FIRM	
CIRCULATION	ALBERTA	SEPT 68	APR 69	APR 69	JULY 69	SEPT 69				✓		COBOL	✓			60K WITH BUFFERS
	BRITISH COLUMBIA		JUNE 65		AUG 65		SEPT 65	✓				COBOL	✓			32K
	BROCK					JAN 68	MAY 68	✓				RPG		✓		8K
	DALHOUSIE	FALL 68	SPR. 69	MAR. 69	FALL 69	JAN 70							✓			
	GUELPH						AUG 68	✓				COBOL	✓			
	LAVAL	DEC 68	MAY 69	DEC 68	MAY 69				✓			PL-I		✓		4 K
	MANITOBA	JAN 69	JULY 69	JAN 69	AUG 39	APR 70						COBOL		✓		60K
	McMASTER					JULY 69						COBOL		✓		32 K WORDS
	MONTREAL (FAC. SC. SOC.)					SEPT 69								✓		
	SASKATCHEWAN	OCT 66	DEC 66	JAN 67	JUNE 67	SEPT 67	DEC 67	✓				COBOL		✓		
	SIMON FRASER	SEPT 64	JAN 65	JAN 65	SEPT 65	SEPT 65		✓				PL-I		✓		40K
	TORONTO				70	70						METASYMBOL	✓			
	VICTORIA	AUG 66		FEB 67	MAR 68	MAR 68	SEPT 68	✓				PL - I		✓		32 K BYTES
	WESTERN ONTARIO (NAT. SCI. LIB.)	SEPT 68	DEC 68	JUNE 69	AUG 69	SEPT 69					✓	COBOL		✓		30K
	YORK	MAY 69	MAY 69	JUNE 69	JULY 69	AUG 69	SEPT 69		✓			COBOL		✓		
CLASSIFICATION	WATERLOO							✓				FORTRAN	✓			150 K BYTES
COURSE READING LISTS	BRITISH COLUMBIA		JAN 67		MAR 67		APR 67	✓				COBOL	✓			32K
DESIDERATA FILE	WATERLOO							✓				RPG		✓		
GOVERNMENT DOCUMENTS	BRITISH COLUMBIA	MAR 69		FEB 70		JUN 70						COBOL	✓			32K
	BROCK			JULY 69	AUG 69	AUG 69										16K
	GUELPH						JAN 67	✓					✓			
	QUEEN'S					SEPT 69				✓		COBOL			✓	20 K BYTES

	SASKATCHEWAN	OCT 66	DEC 66	JAN 67	JUNE 67	SEPT 67	DEC 67	✓				COBOL		✓		
	SIMON FRASER	SEPT 64	JAN 65	JAN 65	SEPT 65	SEPT 65		✓				PL-I		✓		40K
	TORONTO				70	70						METASYMBOL	✓			
	VICTORIA	AUG 66		FEB 67	MAR 68	MAR 68	SEPT 68	✓				PL-I		✓		32 K BYTES
	WESTERN ONTARIO (NAT. SCI. LIB.)	SEPT 68	DEC 68	JUNE 69	AUG 69	SEPT 69					✓	COBOL		✓		30K
	YORK	MAY 69	MAY 69	JUNE 69	JULY 69	AUG 69	SEPT 69		✓			COBOL		✓		
CLASSIFICATION	WATERLOO							✓				FORTRAN	✓			150 K BYTES
COURSE READING LISTS	BRITISH COLUMBIA		JAN 67		MAR 67		APR 67	✓				COBOL	✓			32K
DESIDERATA FILE	WATERLOO							✓				RPG		✓		
GOVERNMENT DOCUMENTS	BRITISH COLUMBIA	MAR 69		FEB 70		JUN 70						COBOL	✓			32K
	BROCK			JULY 69	AUG 69	AUG 69										16K
	GUELPH						JAN 67	✓					✓			
	QUEEN'S					SEPT 69				✓		COBOL			✓	20 K BYTES
(SHELF LIST)	McMASTER							✓				COBOL		✓		32 K WORDS
HOLDINGS (VOL.COUNT)	VICTORIA						DEC 67	✓				PL-I		✓		60K BYTES
(SHELF LIST)	VICTORIA	AUG 66		FEB 67		SEPT 68			✓			PL-I		✓		60K BYTES
(GEN PURPOSE CATALOGUE)	BRITISH COLUMBIA	SEPT 68		JAN 69		MAY 69			✓			COBOL	✓			32K
INDEXING	LAVAL							✓				PL-I		✓		4K
	NEW BRUNSWICK	SEPT 68	JAN 69			JAN 69	APR 69	✓		✓		PL-I SM/360		✓		80K BYTES
(BUS BOOK REV)	YORK									✓		COBOL		✓		
(TECH REP'TS)	YORK							✓				RPG COBOL		✓		
INFORMATION RETRIEVAL	LAVAL							✓						✓		
OUT OF PRINT SYSTEM	SIMON FRASER	DEC 68	FEB 69	FEB 69	JUNE 69	JUNE 69		✓				PL-I		✓		16K
PERSONNEL RECORDS	CALGARY	JULY 69	SEPT 69	SEPT 69	NOV 69	DEC 69						COBOL	✓			
PHONORECORD CATALOGUING	YORK							✓				RPG COBOL		✓		
RECORDINGS CAT & CLASS SYS	BRITISH COLUMBIA	APR 65		SEPT 65		JAN 66		✓				COBOL	✓			32K
REFERENCE LISTS	WATERLOO							✓				RPG		✓		

APPLICATION	LIBRARY	STATUS OF APPLICATION						OPERATIONAL STATUS				MACHINE LANGUAGE	PROGRAMMING			MEMORY USED
		SYSTEM ANALYSIS		PROGRAMMING		IMPLEMENTATION										
		BEGINNING DATE	COMPLETION DATE	BEGINNING DATE	COMPLETION DATE	BEGINNING DATE	COMPLETION DATE	FULLY OPERATING	PARTLY OPERATING	UNDER REVISION	NOT OPERATING		LIBRARY STAFF	COMPUTER CENTRE STAFF	OUTSIDE FIRM	
RESERVE BOOK LISTINGS	BROCK							✓				RPG		✓		
	VICTORIA		NOV 67		NOV 67		NOV 67	✓				FORTRAN	✓			
	YORK							✓				RPG COBOL		✓		
SDI	YORK							✓				RPG COBOL		✓		
SERIALS	BRITISH COLUMBIA		1967		1968		1968	✓				COBOL	✓			32K
	BROCK								✓			RPG		✓		
	CALGARY	MAY 68	JULY 68	JULY 68	OCT 68		NOV 68	✓				COBOL		✓		
	DALHOUSIE	SUM 68	SPR 69	FALL 68	SUM 69	FALL 68	FALL 68		✓			PL-I ASSEMBLER	✓			10 K
	GUELPH						JULY 68	✓				COBOL	✓			
	LAVAL							✓				PL-I ASSEMBLER		✓	✓	55K
(HOLDINGS)	McMASTER						69	✓							✓	
	SIMON FRASER	OCT 65	DEC 65	DEC 65	FEB 66	FEB 66		✓				PL-I		✓		25K
	SIR GEORGE WILLIAMS	JUNE 67							✓	✓		COBOL		✓		15K
	TORONTO			70								METASYMBOL	✓			
	WATERLOO							✓				RPG		✓		
	WESTERN ONTARIO	JULY 67	AUG 67	AUG 67	SEPT 67	SEPT 67	JAN 68					COBOL		✓		30 K
	WINDSOR	JUNE 69	MAR 70		MAY 70		SEPT 70					PL-I	✓	✓		
	YORK	JULY 69							✓			COBOL			✓	
STATUTES	LAVAL	JUNE 68	MAR 69	OCT 68					✓			APL PL-I		✓		4 K
SUBJECT HEADINGS	LAVAL							✓				PL-I		✓		4 K
	SHERBROOKE									✓		PL-I		✓		
USE STUDIES	BRITISH COLUMBIA	JUN 67		JUN 67		JUN 67			✓			COBOL	✓			32 K

APPLICATION	LIBRARY	STATUS OF APPLICATION						OPERATIONAL STATUS				MACHINE LANGUAGE	PROGRAMMING			MEMORY USED
		SYSTEM ANALYSIS		PROGRAMMING		IMPLEMENTATION										
		BEGINNING DATE	COMPLETION DATE	BEGINNING DATE	COMPLETION DATE	BEGINNING DATE	COMPLETION DATE	FULLY OPERATING	PARTLY OPERATING	UNDER REVISION	NOT OPERATING		LIBRARY STAFF	COMPUTER CENTRE STAFF	OUTSIDE FIRM	
ACCESSIONS LISTS	BRITISH COLUMBIA		1966		1966		JAN. 66	✓				COBOL	✓			32K
	GUELPH						1966	✓				COBOL		✓		
	McMASTER															
	YORK							✓				RPG AND COBOL		✓		
ACCOUNTS	CALGARY						MAY 69	✓				COBOL		✓		
ACQUISITIONS	ALBERTA	OCT 69														
	BRITISH COLUMBIA		JUNE 68		OCT 68		DEC 68	✓				COBOL	✓			32 K
	DALHOUSIE				SUMMER 68	SUMMER 68	DEC 68	✓				PL-I		✓		100 K BYTES
	GUELPH						68	✓				COBOL			✓	
	MANITOBA	APR 68	OCT 68	JAN 69	JULY 69	JULY 69						COBOL		✓		80K
	McMASTER	APR 69														
	MOUNT ALLISON	MAY 69	AUG 69	MAY 69	DEC 69	OCT 69	MAR 70		✓			FORTRAN ASSEMBLER RPG	✓			32K
	OTTAWA					JUL 69		✓				PL-I		✓		
(Batch)	SASKATCHEWAN	SEPT 68	SEPT 69	SEPT 69	JUNE 70	JULY 70	OCT 70				✓	COBOL		✓		
(On-line)	SASKATCHEWAN	JULY 72	DEC 72	JULY 72	DEC 72	JAN 73	MAR 73				✓	COBOL AND ASSEMBLER		✓		
	SIMON FRASER	OCT 65	JAN 66	JAN 66	JUNE 66	JULY 66		✓				PL-I		✓		20K
	TRENT	CONTRACTED TO LOCAL FIRM (CANADIAN GENERAL ELECTRIC)														
	WESTERN ONTARIO	JULY 66	JAN 67	JAN 67	MAR 67	MAR 67		✓				COBOL		✓		64K BYTES
	WINDSOR	DEC 69	JUNE 70		AUG 70		NOV 70					PL-I	✓	✓		
	YORK	JULY 69		?		?					✓	COBOL		✓		
BIBLIOGRAPHIC LISTS	ALBERTA	1966	1967	1967	1967	1968				✓		COBOL		✓		200K WITH BUFFERS
	GUELPH						1968	✓		✓		COBOL, PL-I	✓			
	McMASTER								✓							

ACQUISITIONS	ALBERTA	OCT 69													
	BRITISH COLUMBIA		JUNE 68		OCT 68		DEC 68	✓				COBOL	✓			32 K
	DALHOUSIE				SUMMER 68	SUMMER 69	DEC 68	✓				PL-I		✓		100 K BYTES
	GUELPH						68	✓				COBOL			✓	
	MANITOBA	APR 68	OCT 68	JAN 69	JULY 69	JULY 69						COBOL		✓		80K
	McMASTER	APR 69														
	MOUNT ALLISON	MAY 69	AUG 69	MAY 69	DEC 69	OCT 69	MAR 70		✓			FORTRAN ASSEMBLER RPG	✓			32K
	OTTAWA					JUL 69		✓				PL-I		✓		
(Batch)	SASKATCHEWAN	SEPT 68	SEPT 69	SEPT 69	JUNE 70	JULY 70	OCT 70				✓	COBOL		✓		
(On-line)	SASKATCHEWAN	JULY 72	DEC 72	JULY 72	DEC 72	JAN 73	MAR 73				✓	COBOL AND ASSEMBLER		✓		
	SIMON FRASER	OCT 65	JAN 66	JAN 66	JUNE 66	JULY 66		✓				PL-I		✓		20K
	TRENT	CONTRACTED TO LOCAL FIRM (CANADIAN GENERAL ELECTRIC)														
	WESTERN ONTARIO	JULY 66	JAN 67	JAN 67	MAR 67	MAR 67		✓				COBOL		✓		64K BYTES
	WINDSOR	DEC 69	JUNE 70		AUG 70		NOV 70					PL-I	✓	✓		
	YORK	JULY 69		?		?					✓	COBOL		✓		
BIBLIOGRAPHIC LISTS	ALBERTA	1966	1967	1967	1967	1968				✓		COBOL		✓		200K WITH BUFFERS
	GUELPH						1968	✓		✓		COBOL, PL-I	✓			
	McMASTER								✓							
BOOK INVENTORY	SIMON FRASER	JAN 68	FEB 68	FEB 68	APR 68	APR 68		✓				PL-I		✓		10 K
CATALOGUING	ALBERTA	OCT 69														
	BRITISH COLUMBIA	JAN 68			JUNE 68		JUNE 68		✓			COBOL	✓			32 K
	DALHOUSIE	FALL 68	SPR 69			MAY 69	JUNE 69									
	GUELPH						JAN 69	✓				COBOL	✓			
(PAMPHLETS)	LAVAL							✓				PL-I		✓		
	SASKATCHEWAN	JAN 69	DEC 72	APR 69	DEC 72	MAY 69	MAR 73		✓			COBOL		✓		
	SIMON FRASER	JULY 66	SEPT 66	SEPT 66	FEB 67	FEB 67		✓				PL-I		✓		25K
(MAPS)	SIMON FRASER	FEB 68	APR 68	MAY 68	AUG 68	SEPT 68		✓				PL-I		✓		30K
(PAMPHLETS)	SIMON FRASER	MAY 68	JULY 68	JULY 68	SEPT 68	SEPT 68		✓				PL-I		✓		15 K
	TORONTO				69/70	69/70						METASYMBOL	✓			
	WINDSOR	FEB 69	JULY 69	JULY 69	AUG 69		SEPT 69					PL-I	✓	✓		
	YORK		FALL 70	DEC 69		?						PL-I ASSEMBLER COBOL		✓		

APPLICATION	LIBRARY	EQUIPMENT									
		CENTRAL PROCESSOR	CARD READER	CARD PUNCH	PAPER TAPE READER AND PUNCH	MAGNETIC TAPE UNITS	DISK STORAGE	OTHER EXTERNAL STORAGE	LINE PRINTER TYPE	LINE PRINTER NO. OF PRINTABLE CHAR.	LINE PRINTER OTHER INPUT OUTPUT
ACCESSIONS LISTS	BRITISH COLUMBIA	H - 200	H - 223			H-204B-4			H-222-4		IBM 026
	GUELPH										
	McMASTER	IBM 7040				IBM 729	IBM 2302	-	IBM 1403	48	
	YORK	IBM 360/50	IBM 2540	IBM 2540		IBM 2415	IBM 2314		IBM 1403	64	CD OPTICAL PAGE READER 915, OPTICAL FONT IBM SELECTRIC TYPEWRITER
ACCOUNTS	CALGARY	IBM 360/50	IBM 2540	IBM 2540		IBM 2401 IBM 2403	IBM 2314		IBM 1403		
ACQUISITIONS	ALBERTA										
	BRITISH COLUMBIA	H - 200	H - 223	H - 214	16 CHANNEL	H-204B-4					FRIDEN FLEXOWRITER 2302
	DALHOUSIE	IBM 360/50	IBM 2540	IBM 2540		IBM 2400	IBM 2311		IBM 1400	64	
	GUELPH	CONTRACTED TO BPAL (TORONTO)									
	MANITOBA	IBM 360/65	IBM 2501				IBM 2314		IBM 1403	64	
	McMASTER										UNIT RECORD EQUIPMENT
	MOUNT ALLISON	IBM 1130	IBM 1442	IBM 1442			IBM 2310		IBM 1132	48	
	OTTAWA	IBM 360/65	IBM 2501 IBM 2540	IBM 2540		IBM 2401	IBM 2314	IBM DRUM 2303	IBM 1403	132	
(Batch)	SASKATCHEWAN	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2311		IBM 1403	60	
(On-Line)	SASKATCHEWAN	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2314		IBM 1403		IBM 1050 OR 2741; IBM CRT TERMINALS
	SIMON FRASER	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2311		IBM 1403	60	
	TRENT	(CONTRACTED TO LOCAL FIRM (CANADIAN GENERAL ELECTRIC)									
	WESTERN ONTARIO	IBM 360/40	IBM 2540			IBM 2401	IBM 2314		IBM 1403	60	IBM 2740 TERMINAL IBM 2260 TERMINAL
	WINDSOR	IBM 360/50	IBM 2540	IBM 2540		IBM 2401			IBM 1403		
	YORK	IBM 360/50	IBM 2540	IBM 2540		IBM 2415	IBM 2314		IBM 1403	64	CD OPTICAL PAGE READER 915, OPTICAL FONT IBM SELECTRIC TYPEWRITER
BIBLIOGRAPHIC LISTS	ALBERTA	IBM 360/67	IBM 2540			IBM 2415	IBM 2314		IBM 1403	64	
	GUELPH	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2314		IBM 1403	64	MOHAWK DATA RECORDERS
	McMASTER										
BOOK INVENTORY	SIMON FRASER	IBM 360/50	IBM 2540	IBM 2540		IBM 2401			IBM 1403	60	
	ALBERTA										

		MANITOBA	IBM 360/65	IBM 2501								
ACQUISITIONS		McMASTER										UNIT RECORD EQUIPMENT
		MOUNT ALLISON	IBM 1130	IBM 1442	IBM 1442			IBM 2310		IBM 1132	48	
		OTTAWA	IBM 360/65	IBM 2501 IBM 2540	IBM 2540		IBM 2401	IBM 2314	IBM DRUM 2303	IBM 1403	132	
	(Batch)	SASKATCHEWAN	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2311		IBM 1403	60	
	(On-Line)	SASKATCHEWAN	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2314		IBM 1403		IBM 1050 OR 2741; IBM CRT TERMINALS
		SIMON FRASER	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2311		IBM 1403	60	
		TRENT	(CON	TRACTED TO	LOCAL FIRM	(CANADIAN	GENERAL	ELECTRIC)				
		WESTERN ONTARIO	IBM 360/40	IBM 2540			IBM 2401	IBM 2314		IBM 1403	60	IBM 2740 TERMINAL IBM 2260 TERMINAL
		WINDSOR	IBM 360/50	IBM 2540	IBM 2540		IBM 2401			IBM 1403		
		YORK	IBM 360/50	IBM 2540	IBM 2540		IBM 2415	IBM 2314		IBM 1403	64	CD OPTICAL PAGE READER 915, OPTICAL FONT IBM SELECTRIC TYPEWRITER
BIBLIOGRAPHIC LISTS		ALBERTA	IBM 360/67	IBM 2540			IBM 2415	IBM 2314		IBM 1403	64	
		GUELPH	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2314		IBM 1403	64	MOHAWK DATA RECORDERS
		McMASTER										
BOOK INVENTORY		SIMON FRASER	IBM 360/50	IBM 2540	IBM 2540		IBM 2401			IBM 1403	60	
CATALOGUING		ALBERTA										
		BRITISH COLUMBIA	H - 200	H - 223			H-204B-4			H-222-4		IBM 026
		DALHOUSIE						IBM				IBM SELECTRIC TYPEWRITER
		GUELPH	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2314		IBM 1403	64	MOHAWK DATA RECORDERS
	(Pamphlets)	LAVAL	IBM 360/50		IBM 026		IBM 2400			IBM 1403	60	
		SASKATCHEWAN	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2311		IBM 1403	120	CRT
		SIMON FRASER	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2311		IBM 1403	60	
	(Maps)	SIMON FRASER	IBM 360/50	IBM 2540	IBM 2540		IBM 2401			IBM 1403	60	
	(Pamphlets)	SIMON FRASER	IBM 360/50	IBM 2540	IBM 2540		IBM 2401			IBM 1403	60	
	(MARC II)	TORONTO	SDS SIGMA 7	SDS 7122	SDS 7160	SDS 7060 READER	SDS 7322	BRYANT 2A 400 MB	SDS RAD 7204	POTTER ICP - 3505	134	TTY 37 ASR
		WINDSOR	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2314		IBM 1403		
		YORK	IBM 360/50	IBM 2540	IBM 2540		IBM 2415	IBM 2314		IBM 1403	64	CD OPTICAL PAGE-READER 915, OPTICAL FONT IBM SELECTRIC TYPEWRITER
		ALBERTA	IBM 360/0	IBM 2540	IBM 2540		IBM 2415	IBM 2311		IBM 1403	64	
		BRITISH COLUMBIA	H - 200	H 225	H - 214		H-204B-4			H-222-4	64	IBM 1031 SYS IBM 026
		BROCK	IBM 360/20	IBM 2560	IBM 2560		IBM 2415			IBM 2203	62	WATERLOO COMM LINK

APPLICATION	LIBRARY	EQUIPMENT							LINE PRINTER		
		CENTRAL PROCESSOR	CARD READER	CARD PUNCH	PAPER TAPE READER AND PUNCH	MAGNETIC TAPE UNITS	DISK STORAGE	OTHER EXTERNAL STORAGE	TYPE	NO OF PRINTABLE CHAR.	OTHER INPUT OUTPUT
CIRCULATION	DALHOUSIE	IBM 360/50	IBM 2540	IBM 2540		IBM 2400	IBM 2311		IBM 1400	64	IBM 357 DATA COLL. SYSTEM
	GUELPH	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2314		IBM 1403	64	IBM 1031 TERM BM 1034 PUNCH
	LAVAL	IBM 360/50		IBM 029 IBM 013		IBM 2400	IBM 2314		IBM 1403	60	SOURCE RECORD PUNCH (SRC)
	MANITOBA	IBM 360/65	IBM 1031	IBM 1442			IBM 2314		IBM 1403	64	
	McMASTER	IBM 7040	IBM 1402	IBM 1402		IBM 729	IBM 1301 IBM 2302		IBM 1403	48	NCR ENCODERS; FRIDEN COLLECTADATA TERMINALS AND PAPER TAPE RECUR
	MONTREAL (FAC. SCI. SOC.)	TRANSACTER SYSTEM (CDC)									
	SASKATCHEWAN	IBM 360/50	IBM 2540			IBM 2401	IBM 2311		IBM 1403	60	IBM CRT
	SIMON FRASER	IBM 360/50	IBM 2540	IBM 2540		IBM 2401			IBM 1403	60	
	TORONTO	SDS SIGMA 7	SDS 7122	SDS 7160	SDS 7060 READER	SDS 7322	BRYANT 2A 400 MB	SDS RAD 7204	POTTER ICP-3503	134	DATA COLL. TERM (SDS); TELETYPE 33
	VICTORIA	IBM 360/44	IBM 2540	IBM 2540		IBM 2401	IBM 2311		IBM 1403	60	IBM CARD BADGE READER 1031 CARD PUNCH 1034
	WESTERN ONTARIO (NAT. SCI.)	IBM 360/40	IBM 103.	IBM 1034			IBM 2314		IBM 1403	60	IBM 2265 CRT IBM 1033 LINE PR
	YORK	IBM 360/50	IBM 2540	IBM 2540		IBM 2415	IBM 2314		IBM 1403	64	CRAIN 1700 SOURCE RECORD PUNCH
CLASSIFICATION	WATERLOO	IBM 360/75	IBM 2540	IBM 2540			IBM 2314		IBM 1403	64	
COURSE READING LISTS	BRITISH COLUMBIA	H - 200	H - 223			H-204B-4			H- 222- 4		IBM 026
DESIDERATA FILE	WATERLOO	IBM 360/75	IBM 2540	IBM 029		IBM	IBM 2314		IBM 1403	64	
GOVERNMENT DOCUMENTS	BRITISH COLUMBIA	H - 200	H - 223			H-204B-4			H-222-4		
	BROCK	IBM 360/20	IBM 2560	IBM 2560		IBM 2415			IBM 2203	52	
	GUELPH	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2314		IBM 1403	64	MOHAWK DATA RECORDER
	QUEEN'S	IBM 360/50	IBM 2540	IBM 2540		IBM 2400			IBM 1403	60	IBM 2741 COM. TER.
HOLDINGS (Shelf List)	McMASTER	IBM 7040	IBM 1402	IBM 1402		IBM 729	IBM 1301 IBM 2302		IBM 1403	48	NCR 735
(Vol. Count)	VICTORIA	IBM 360/44				IBM 2415			IBM 1403	60	
(Shelf List)	VICTORIA	IBM 360/44	IBM 2540	IBM 2540		IBM 2401	IBM 2311		IBM 1403	60	
(Gen. Purpose Catalogue)	BRITISH COLUMBIA	H-200	H-223			H 204B-4			H-222-4		IBM 026
INDEXING	LAVAL	IBM 360/50		IBM 026 IBM 029	IBM 047 FLEXOWRITER 1052	IBM 2400	IBM 2314		IBM 1403	60	
	NEW BRUNSWICK	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2311		IBM 1403	132	

	SIMON FRASER	IBM 360/50	IBM 2540	IBM 2540		IBM 2401			IBM 1403	60	
	TORONTO	SDS SIGMA 7	SDS 7122	SDS 7160	SDS 7060 READER	SDS 7322	BRYANT 2A 400 MB	SDS RAD 7204	POTTER ICP-3503	134	DATA COLL. TERM (SDS); TELETYPE 33
	VICTORIA	IBM 360/44	IBM 2540	IBM 2540		IBM 2401	IBM 2311		IBM 1403	60	IBM CARD BADGE READER 1031 CARD PUNCH 1034
	WESTERN ONTARIO (NAT. SCI.)	IBM 360/40	IBM 1031	IBM 1034			IBM 2314		IBM 1403	60	IBM 2265 CRT IBM 1033 LINE PR
	YORK	IBM 360/50	IBM 2540	IBM 2540		IBM 2415	IBM 2314		IBM 1403	64	CRAIN 1700 SOURCE RECORD PUNCH
CLASSIFICATION	WATERLOO	IBM 360/75	IBM 2540	IBM 2540			IBM 2314		IBM 1403	64	
COURSE READING LISTS	BRITISH COLUMBIA	H - 200	H - 223			H-204B-4			H-222-4		IBM 026
DESIDERATA FILE	WATERLOO	IBM 360/75	IBM 2540	IBM 029		IBM	IBM 2314		IBM 1403	64	
GOVERNMENT DOCUMENTS	BRITISH COLUMBIA	H - 200	H - 223			H-204B-4			H-222-4		
	BROCK	IBM 360/20	IBM 2560	IBM 2560		IBM 2415			IBM 2203	52	
	GUELPH	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2314		IBM 1403	64	MOHAWK DATA RECORDER
	QUEEN'S	IBM 360/50	IBM 2540	IBM 2540		IBM 2400			IBM 1403	60	IBM 2741 COM. TER.
HOLDINGS (Shelf List)	McMASTER	IBM 7040	IBM 1402	IBM 1402		IBM 729	IBM 1301 IBM 2302		IBM 1403	48	NCR 735
(Vol. Count)	VICTORIA	IBM 360/44				IBM 2415			IBM 1403	60	
(Shelf List)	VICTORIA	IBM 360/44	IBM 2540	IBM 2540		IBM 2401	IBM 2311		IBM 1403	60	
INDEXING (Gen. Purpose Catalogue)	BRITISH COLUMBIA	H-200	H-223			H204B-4			H-222-4		IBM 026
	LAVAL	IBM 360/50		IBM 026 IBM 029	IBM 047 FLEXOWRITER 1052	IBM 2400	IBM 2314		IBM 1403	60	
	NEW BRUNSWICK	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2311		IBM 1403	32	
(Bus. Book Rev.)	YORK	IBM 360/50	IBM 2540	IBM 2540		IBM 2415	IBM 2314		IBM 1403	64	CD OPTICAL PAGE READER
(Tech Rep'ts)	YORK	IBM 360/50	IBM 2540	IBM 2540		IBM 2415	IBM 2314		IBM 1403	64	CD OPTICAL PAGE READER
INFORMATION RETRIEVAL	LAVAL	MIRACODE									16 MM MICROFILM
OUT OF PRINT SYSTEM	SIMON FRASER	IBM 360/50	IBM 2540	IBM 2540		IBM 2401			IBM 1403	60	
PERSONNEL RECORDS	CALGARY	WILL FOLLOW SAME CONFIGURATION AS USED FOR OTHER APPLICATIONS									
PHONORECORD CATALOGUING	YORK	IBM 360/50	IBM 2540	IBM 2540		IBM 2415	IBM 2314		IBM 1403	64	CD OPTICAL PAGE READER
RECORDINGS CAT & CLASS SYS	BRITISH COLUMBIA	H - 200	H - 2[illegible]			H-204B-4			H-222-4		IBM 026
REFERENCE LIST	WATERLOO	IBM 360/75	IBM 2540	IBM 029		IBM	IBM 2314		IBM 1403	64	
RESERVE BOOK LISTINGS	BROCK	IBM 360/20	IBM 2560	IBM 2540		IBM 2415			IBM 2203	52	
	VICTORIA	IBM 360/44	IBM 2540	IBM 2540				CARD FILE	IBM 1403	6.0	
	YORK	IBM 360/50	IBM 2540	IBM 2540		IBM 2415	IBM 2314		IBM 1403	64	CD OPTICAL PAGE READER
SDI	YORK	IBM 360/50	IBM 2540	IBM 2540		IBM 2415	IBM 2314		IBM 1403	64	
SERIALS	BRITISH COLUMBIA	H - 200	H - 223	H - 214		H-204B-4			H-222-4	64	
	BROCK	[illegible]	[illegible]	IBM 2540		IBM 2415			[illegible]	52	

APPLICATION	LIBRARY	EQUIPMENT									
		CENTRAL PROCESSOR	CARD READER	CARD PUNCH	PAPER TAPE READER AND PUNCH	MAGNETIC TAPE UNITS	DISK STORAGE	OTHER EXTERNAL STORAGE	LINE PRINTER		
									TYPE	NO. OF PRINTABLE CHAR.	OTHER INPUT OUTPUT
(Holdings)	CALGARY	IBM 360/50	IBM 2540	IBM 2540		IBM 2401 IBM 2403	IBM 2314		IBM 1403		
	DALHOUSIE	IBM 360/50	IBM 2540	IBM 2540		IBM 2400			IBM 1400	64	
	GUELPH	IBM 360/50	IBM 2540	IBM 2540		IBM 2401	IBM 2314		IBM 1403	64	MOHAWK DATA RECORDERS
	LAVAL	IBM 360/50				IBM 2400	IBM 2314		IBM 1403	60	IBM 2260 CAT
	McMASTER	IBM 360/50									
	SIMON FRASER	IBM 360/50	IBM 2540	IBM 2540		IBM 2401			IBM 1403	60	
	SIR GEORGE WILLIAMS	CDC 3300	CDC 405			CDC 604			CDC 501	136	
	TORONTO	SDS SIGMA 7	SDS 7122	SDS 7160	SDS 7060 READER	SDS 7322	BRYANT 2A 400 MB	SDS RAD 7204	POTTER ICP-3503	134	SDS 7555 DISPLAY
	WATERLOO	IBM 360/75	IBM 2540	IBM 029		IBM	IBM 2314		IBM 1403	64	
	WESTERN ONTARIO	IBM 360/40	IBM 2540	IBM 029		IBM 2401			IBM 1403	60	
	WINDSOR	IBM 360/50	IBM 2540	IBM 2540		IBM 2401			IBM 1403		
STATUTES	LAVAL	IBM 360/50					IBM 2314				RCA 2740 PHOTO COMP.
SUBJECT HEADINGS	LAVAL	IBM 360/50		IBM 026	IBM 047 FLEXOWRITER 1050	IBM 2400			IBM 1403	60	
	SHERBROOKE	IBM 360/40	IBM 1442 IBM 2501	IBM 029	FLEXOWRITER	IBM 2415	IBM 2311		MOHAWK IBM 1403		MOHAWK TERM- IBM 1052 TERM
USE STUDIES	BRITISH COLUMBIA	H-200	H-223			H-2048-4					

APPENDIX G

AN APPROACH TO CENTRALIZED BIBLIOGRAPHIC RECORDS

Introduction

Using the overall objective of the AUCC Automation Committee, which is to study the feasibility of establishing systems among university libraries based on cooperation and compatibility, the subcommittee or Task Force was formed to study specific systems and make recommendations pertaining to them. This is one attempt to provide a solution, there are undoubtedly others, but this may initiate discussion.

I. Catalogue or bibliographic record.

Many libraries have, or contemplate having three separate systems for the bibliographic records for:

a) Monographs
b) Serials
c) Government publications

The reason for the different systems is inherent in the data elements of the materials themselves. Since the Library of Congress (in conjunction with the National Library of Medicine and the National Library of Agriculture) is currently studying a system for periodicals (which would include government publications) it was decided to limit this study to the catalogue records for monographs only. These will, of course, form the large majority of the records in any machine-readable academic library catalogue.

II. Objective of a Machine-Readable Catalogue

c) Government publications

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II. Objective of a Machine-Readable Catalogue

Although the MacDonald report, among others, insists that a national machine-readable catalogue is a necessity for Canada, it seemed necessary to establish the objectives of such a catalogue at three levels:

1) local
2) regional
3) national

1. Local objectives of machine-readable catalogue

A. Definition

A machine-readable catalogue contains the *complete* bibliographic record for a title, which is normally displayed on the main-entry card in the public catalogue. An off-line system on magnetic tape is all that is presumed at present.

B. Objectives of the system for internal library use.

a) to produce from one input, all the files, forms, labels, etc. which are necessary to assist the user to gain access to the contents of the lbirary. This would include:

- i) catalogue cards, with headings added, in alphabetic sequence for filing in the public catalogue
- ii) spine labels
- iii) pocket labels (or pocket)
- iv) book card (for circulation system)

b) to update the catalogue or file on tape, and create such statistics as are defined.

c) to maintain authority files, such as subject and series

d) to produce special print-outs as required:

- i) book catalogues for specialized subject or area
- ii) accession lists
- iii) shelf lists for stock taking purposes

2. Regional objectives

It is assumed, (and the Ontario IUTS statistics bear this out) that the dependence of one university library on another is almost entirely a regional matter. In other words, 90 per cent of requests for material not held in a particular library, can, on the average, be met in the region. With this assumption as a background, the objectives of a regional system are basically no different than a

ii) accession lists

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2. Regional objectives

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Objective

To provide an up-to-date union catalogue of all university libraries (and other research or reference libraries) within a region, in such a form that it can be accessed quickly by any other library. The need for such access would be:

i) to obtain catalogue copy

ii) to determine if a title is already in another library, or on order in another library

iii) to determine a location for a title so that it could be borrowed

iv) to provide a switching mechanism to a national system if the need can not be met within the region.

3. National objectives

The MacDonald report suggests that a machine-readable union catalogue is needed in Canada because we haven't the time or money to build a single national resource library and must depend on the resources of all our libraries. This implies an up-to-date union catalogue, which, MacDonald states, is not feasible manually (this has been tried and has not succeeded) but which would be possible if in machine-readable form. The actual objective of the catalogue itself would be similar to the regional ones.

Objectives

i) capability of providing location information

ii) capability of providing pn order information

iii) capability of providing catalogue copy

iv) capability to switch a request from one area to another, if necessary.

4. Requirements

1. Local

a) To meet the objectives of the local system the requirements need not be very sophisticated. For instance, upper case only may be quite adequate for all printing purposes, including catalogue cards. Some libraries have experimented with very simple formats for their machine-readable files, however with less than successful results, and the following points should be made:

iv) capability to switch a request from one area to another, if necessary.

4. Requirements

1. Local

a) To meet the objectives of the local system the requirements need not be very sophisticated. For instance, upper case only may be quite adequate for all printing purposes, including catalogue cards. Some libraries have experimented with very simple formats for their machine-readable files, however with less than successful results, and the following points should be made:

i) The only unique number for a book which has any meaning is the call number. The L.C. call number is a very complicated number, with fields and sub-fields which vary from one classification to another. This number can be used, however, if all the variables within it are developed, and adequate space is left for it. (This is no problem if handled in a variable field. For quick sorting, however, a fixed field will have to have at least 46 characters.)

ii) Any data element which is included in the record should be complete, i.e. it can be agreed to eliminate certain data elements, such as notes, but for those elements which are described the compelte information available should be used, or the record loses its usefulness and validity.

iii) To provide the capability of different formats or quick sorting, the many delimeters and fixed codes of the MARC II format can be very useful.

b) No matter what requirements a library has for its in-house operation of a machine-readable catalogue, if it needs to be, or should be, part of a regional or national network it is going to have to be able to communicate with other libraries. To do this it is going to have to be able to convert its own catalogue format to one that is usable or acceptable to the network.

c) This standardized format must obviously be MARC II. No library in Canada has the money to develop and support a comparable system.

d) If a library is going to use a different format than MARC for its own processing, it must have a program which converts its own data to the MARC II format. This implies that all the fields, subfields, delimeters, codes, etc. of the MARC system must be captured in the original input, whether they are used in processing or not.

2. Regional and national

The regional and/or national centre will need to maintain union catalogues, either of all libraries in the regions, or of the complete country (see also below). Several problems exist:

a) To maintain a complete union catalogue in an interrogation mode at all times would cost a prohibitive amount (over $1,000,000 per to the MARC II format. This implies that all the fields, subfields, delimeters, codes, etc. of the MARC system must be captured in the original input, whether they are used in processing or not.

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a) To maintain a complete union catalogue in an interrogation mode at all times would cost a prohibitive amount (over $1,000,000 per annum).

b) To interrogate this file implies a key. The key to the MARC II record is the L.C. card order number. This would not be applicable in Canada, since so many of our records do not have card order numbers, if for no other reason. However, since many people will want to interrogate the union catalogue before they have correct bibliographic details, some method of access dependent on parts of identifying data elements will be necessary.

c) Given the above parameters, the following system is envisaged:

  i) Each library participating in the system would send its data to the network centre in a daily batch basis. The data would consist of three kinds of information:

    (a) catalogue records processed that day

(b) status information

(c) on order information

ii) Each unique record at the network centre will be given a serial number.

iii) A key or code for the record will be developed (see iv. below)

iv) An index, consisting of the serial number and code will be maintained in easily accessible mode, for interrogation.

v) If the complete record is needed, the serial number provides access. The complete record can be maintained in inexpensive tape or disk storage.

vi) The code

Although much research needs to be done, a code, developed from key data elements and which can be automatically derived seems to provide the solution to accessing the file. Reuking (see Library Automation, January 1969) has done work in this direction. Staff at the University of Saskatchewan are also experimenting with the same code.

vii) It is assumed that each library holding a certain title will send it to the network centre. If the record is already in the file, a location code for the second (and subsequent) library will be added. The location field would be almost the first item in the record.

viii) Status information will also be a necessary part of the network file. This includes both On order and Circulation seems to provide the solution to accessing the file. Reuking (see Library Automation, January 1969) has done work in this direction. Staff at the University of Saskatchewan are also experimenting with the same code.

vii) It is assumed that each library holding a certain title will send it to the network centre. If the record is already in the file, a location code for the second (and subsequent) library will be added. The location field would be almost the first item in the record.

viii) Status information will also be a necessary part of the network file. This includes both On order and Circulation or status information. For example, if Library A needs a book and discovers Library B has it through the network, it is useless for him to ask to borrow the book from Library B only to find it is out to the Bindery or is in poor physical condition and can't be borrowed. The On order information would not be too difficult to maintain in a network file. Circulation data would present more of a problem.

5. Questions not answered

i) Do we need both regional centres with union catalogues in machine-readable form and a national catalogue in machine-readable form?

ii) Should the regional centre have a complete national union catalogue?

iii) Should the two national libraries maintain separate machine-readable catalogues with switching devices?

iv) How important is standardization? Can the system be flexible enough to tolerate other than the agreed to standard format?

6. Areas in need of research

i) Development of a code for the records in the file.

ii) Cost studies of national centre vs. regional centres.

iii) Development of editing program to maintain quality of input to union catalogues.

iv) Study of addition of status information to the records in the union catalogue.

v) Development of programs for management information or analysis of resources.

vi) Development of an access code to the MARC tapes so that they can be used as part of the acquisitions system. This code could be the same as that necessary for the union catalogue.

vii) Development of both the systems and hardware to make full use of MARC tapes in the local cataloguing systems. (Display, correction, added to file, processing, etc.)

viii) Development of programs for converting files in upper case or non-MARC format to the standard format.

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vii) Development of both the systems and hardware to make full use of MARC tapes in the local cataloguing systems. (Display, correction, added to file, processing, etc.)

viii) Development of programs for converting files in upper case or non-MARC format to the standard format.

ix) Study of deviation from L.C. cataloguing in both current and retrospective systems.

x) Study of the cost of having a title in a particular library when it is needed, as opposed to the cost of maintaining the national system mentioned above to eliminate such duplication. i.e. How important is it to a faculty member to be able to browse and find a title in his own collection?

xi) Studies of all library costs. What does it cost to catalogue, circulate, shelve, etc.?

7. Systems organization and costs

i) The cost of converting a retrospective catalogue record to complete machine-readable from in a format similar to MARC is approximately $1.25 per title. Eliminating some data elements reduces the cost very little.

ii) Advantages of being part of the network system, and therefore following a standard format, include the receipt of catalogue copy in machine-readable form. If a library had its own machine-readable cataloguing system, it could process all titles very cheaply.

iii) The regional centre (if this is accepted) will have to be independent of any particular university. The Bibliographic Centre in Ontario is an example.

iv) The government (through the National Library Act) will have to supply the authority (or persuasion) to start the network operating. This could be done through grants for both conversion of catalogues and research. Any library not prepared to participate in the network by following the agreed-to format, etc. would not receive a conversion grant. Grants would be based on size of file. Dates should be set for completion of work. Research grants should be awarded based on work in process. A Committee (perhaps with members of AUCC automation task force) could recommend the research grants.

v) Contract grants could also be considered for particular items

iv) The government (through the National Library Act) will have to supply the authority (or persuasion) to start the network operating. This could be done through grants for both conversion of catalogues and research. Any library not prepared to participate in the network by following the agreed-to format, etc. would not receive a conversion grant. Grants would be based on size of file. Dates should be set for completion of work. Research grants should be awarded based on work in process. A Committee (perhaps with members of AUCC automation task force) could recommend the research grants.

v) Contract grants could also be considered for particular items of research. Library schools with the capability could participate in this area.

vi) The libraries which have already converted their catalogues should receive grants on a per title basis, similar to grants for work to be done.

APPENDIX H

AUCC COMMITTEE ON LIBRARY AUTOMATION

Statement on Objectives for Library Automation

I Objectives of Library Automation for Canadian University Libraries.

II Functional Requirements for Analysing Objectives.

III Evaluative Requirements for Analysing Objectives.

IV Conclusions.

AUCC COMMITTEE ON LIBRARY AUTOMATION

I Objectives of Library Automation for Canadian University Libraries

The term "automation" in the context of this statement encompasses the application of the new technologies to all University Library Systems used for producing, processing, storing, retrieving, and distributing or circulating information. The new technologies described include machines (i.e. computers, communications devices, etc.) and all intellectual systems (programmes, systems analysis, etc.) which are relevant to the process.

The aim, then of the University Library Automation Committee can be expressed as follows:

To study the feasibility of establishing systems among university libraries, based on co-operation and compatibility, which are capable of utilizing all the available advances in educational theory and modern technology from which we can benefit without sacrificing any of the relevant features found in traditional libraries. This will ensure that libraries will become more effective resource centres in support of the teaching, research, and recreational needs of the nation - places in which individual users and learners, whether they be students, faculty members, research workers, employees, or local citizens can extend themselves toward their own individual excellence at their libraries, based on co-operation and compatibility, which are capable of utilizing all the available advances in educational theory and modern technology from which we can benefit without sacrificing any of the relevant features found in traditional libraries. This will ensure that libraries will become more effective resource centres in support of the teaching, research, and recreational needs of the nation - places in which individual users and learners, whether they be students, faculty members, research workers, employees, or local citizens can extend themselves toward their own individual excellence at their own individual speed.

Such a statement demands the fulfillment of several ends. Simply stated, these ends should be twofold:

(1) To promote the increased sharing of resources by libraries, particularly of different kinds and with different administrative and geographical jurisdiction.

(2) To use modern technology in an appropriate, economic manner to facilitate the sharing of resources and reduce the costs necessary for developing and maintaining these resources.

(3) To expend the availability of library materials to every user and potential user in the country.

(4) To ensure the continuing assessment of resources, both human and physical, within the systems so that provision for filling gaps that appear can be made.

Such intent implies many added goals:

(a) It implies a degree of "democratization of information", in which all information is made as uniformly available as feasible. There would be no levelling of resources; rather, a formal mechanism would be created by which major resources are protected and yet are made readily available.

(b) It implies a steady increase in the ability to serve at all points of service. This means the building-up of appropriate local collections to meet immediate needs and the provision of the ability to draw on larger resources as required.

(c) It implies a co-operative sharing among libraries, independent of their administrative base.

(d) It implies a division of function based upon efficient utilization of the co-operative network, and not upon administrative boundaries. Thus, delivery of materials is made through the most convenient local agency, and not through some administrative hierarchy.

(e) It implies an increasing degree of specialization in the

(c) It implies a co-operative sharing among libraries, independent of their administrative base.

(d) It implies a division of function based upon efficient utilization of the co-operative network, and not upon administrative boundaries. Thus, delivery of materials is made through the most convenient local agency, and not through some administrative hierarchy.

(e) It implies an increasing degree of specialization in the collections and interests of individual libraries, so that intellectual and financial resources are not dissipated in duplication of more broadly available material.

(f) It implies a sense of responsibility by the individual library to more than its own constituency, including a willingness to serve others and to support the costs of operating larger collections on which it may draw.

(g) It implies an increasing concentration of equipment - for data processing and communication - at clearly defined points, thus providing a rationale for installation of specific levels of equipment.

(h) It implies a willingness on the part of libraries to co-operate, in a voluntary but responsible manner, including a willingness to accept certain common standards for acquisitions, cataloguing, and methods of operation.

(i) It implies the creation of a new view of the library - on the part of librarians as well as users - as the place to go for information needs of all kinds.

II Functional Requirements for Analysing Objectives

In considering objectives in the light of ultimately obtaining some means for co-operative systems and the co-ordination of systems development, it appears essential to establish functional requirements and to identify the relationship of existing systems to these requirements. When the requirements can be stated in this context, consideration can be given to the determination of what is needed.

Functional requirements are listed below and defined separately.

1. Optimized cost/performance.
2. Operational capacity.
3. Management information.
4. General information services.
5. Special information services.
6. External resource development.
7. External resource sharing.
8. Rationalized resource development.

1. Optimized cost/performance - the best cost/performance combination

4. General information services.
5. Special information services.
6. External resource development.
7. External resource sharing.
8. Rationalized resource development.

1. Optimized cost/performance - the best cost/performance combination in terms of the objectives expected for a specific operational system in relation to existing equipment and resources. This is not necessarily the lowest cost, and will be directly affected by the level of service expected and the alternatives available to the library.

2. Operational capacity - the ability of a system to adapt to increased service demands and to satisfactorily deal with peak loads, while maintaining existing demands. This is often the root cause for systems change: the absence of extra capacity and a resulting breakdown of service.

3. Management information - the requirement of providing data about operations services and resources for the various parts of the systems, for the purpose of administering the total systems including the determination of all necessary changes.

4. General information services - the requirements for maintaining and developing acceptable levels of service to users in any institution on an overall basis (without distinctions between various users).
5. Special information services - the requirements for maintaining and developing services that are unique to a single user or group of users, relative to their particular needs or interests.
6. External resource development - the requirements for establishing human and physical resources needs as they relate to the development of regional and national co-operation.
7. External resource sharing - the facility of co-operatively sharing resources that can be feasibly shared; collections, processes, equipment and staff.
8. Rationalized resource development - the requirements for allocating responsibility along geographic realities, in terms of reducing redundancy.

III Evaluative Requirements for Analysing Objectives

In analysing the objectives and functional requirements in a manner which will allow for the development of the system best suited for the AUCC, it is essential to establish priorities based on two factors;

A. Responsibility levels.

B. Types of organizations involved.

What follows is a description of these factors:

A. Responsibility levels

III Evaluative Requirements for Analysing Objectives

In analysing the objectives and functional requirements in a manner which will allow for the development of the system best suited for the AUCC, it is essential to establish priorities based on two factors;

A. Responsibility levels.
B. Types of organizations involved.

What follows is a description of these factors:

A. Responsibility levels

1. LOCAL — the requirements to meet the objectives for the local system in relation to specific needs of the institution.

2. PROVINCIAL/REGIONAL — the requirements for meeting the objectives for a provincial/regional system in relation to the specific needs of the geographic area.

3. NATIONAL — the requirements for meeting the objectives for a national sys in relation to the specific needs of the nation.

4. INTERNATIONAL — the requirements for meeting the objectives for a national system in relation to the effective participation and representation in international developments.

B. Types of organizations involved

1. College and University libraries
2. Public libraries
3. Special libraries
4. Provincial and Federal Government libraries.

Libraries within these categories will have to be studies to determine their requirements and their potential contribution to any systems developed.

IV. Conclusions

Finally, none of the foregoing has validity until a common denominator is developed for evaluating the contribution of each participating institutions.

The more important criteria that must be measured, includes;

3. Special libraries
4. Provincial and Federal Government libraries.

Libraries within these categories will have to be studies to determine their requirements and their potential contribution to any systems developed.

IV. Conclusions

Finally, none of the foregoing has validity until a common denominator is developed for evaluating the contribution of each participating institutions.

The more important criteria that must be measured, includes;

1. Existing physical resources and services.
2. Human resources available.
3. Equipment available.
4. Financial support.

To be effective, these criteria must be examined with the aim of developing specifications for rating participating institutions within the context of the role they are to play.

APPENDIX I

151 Slater Ottawa 4 Canada Cable CANUF OTTAWA

Association of Universities
and Colleges of Canada

Association des Universités
et Collèges du Canada

Refer to file/Mentionnez le dossier

At the second CACUL Conference on Automation held at the School of Library Science University of Toronto, on March 7th and 8th 1968 the following motion was passed.

"The participants recommend that the Association of Universities and Colleges of Canada establish a Committee charged with the responsibility of investigating and making recommendations on the coordination of library automation in Canada..."

The A.U.C.C. has set up a standing Committee on Library Automation in Canada. At its first meeting in Ottawa it was decided to send a questionnaire to every university librarian in order to make an inventory of the projects on library automation.

If you do not have any project planned or in progress, would you just answer the first question.

For any project planned, in progress or completed would you answer part II for each one of them.

We would appreciate your cooperation in answering promptly to this questionnaire which we would like to receive by June the 9th at the latest.

We will send you copy of the compiled report as soon as it will be ready.

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Sincerely yours,

Guy Forget.

Guy Forget,
Chairman,
Committee Library on
Automation in Canada

GF/lc

Successor to the National Conference of Canadian Universities and Colleges and the Canadian Universities Foundation
Organisme succédant à la Conférence nationale des universités et des collèges canadiens et à la Fondation des universités canadiennes

QUESTIONNAIRE ON AUTOMATION

A.U.C.C. COMMITTEE ON LIBRARY AUTOMATION

General Objectives of Questionnaire

To identify the libraries in which programmes of automation are actively being planned or executed.

To discover the short and long term objectives of such programmes and the common problems in their development and implementation.

To identify areas where significant advances might be made by the exchange of information and by promoting co-ordination and co-operation on local, regional and national basis.

To collect and analyze information on the characteristics of current automation programmes, to get some indication of future developments, and to obtain the views of those with experience so that the sound development of automation may be stimulated and facilitated.

The questionnaire is made up of two parts:

Part I General Data

Part II Data on Specific Applications

For Part II a separate form should be completed for each library activity concerned (eg. Serials, Circulation, General Accounts, etc.).

PART I

GENERAL DATA

LIBRARY:-______________________________ Date______________

1. General Studies or Feasibility Studies

a) Overall feasibility study of your library's activities to determine the nature, extent and planning of an automation programme:-

(please tick)

Not planned...............
Planned...................
In progress...............
Complete..................

b) Was the study (or is it scheduled to be) conducted by the following or any particular combination thereof?

(please tick)

Librarians on staff........
Systems analysts on staff..
Outside consultants........

c) Are reports available to other libraries? Yes No

b) Was the study (or is it scheduled to be) conducted by the following or any particular combination thereof?

(please tick)

Librarians on staff........
Systems analysts on staff..
Outside consultants........

c) Are reports available to other libraries? Yes____No_______

2. Equipment

a) What computer is used? (manufacturer's name and number)

____

b) Capacity of central processor?

____

c) Is computer owned by the Library? Yes________No_________

d) If not:

- a) Whose computer is used?

  ____

- b) What is hourly charge?

  ____

- c) How much time is available to library?

  ____

d) What machine readable inputs from outside sources are now being used? (e.g. L.C. MARC tapes)

e) What machine readable inputs could be used if available? (e.g. Canadiana)--------------------

3. Manpower for Automation Development

What staff resources (in man years) does your library employ in its present automation programme and what increase may be anticipated in five years?

	At Present	In 5 years
Systems Analysts	---------	---------
Systems Analyst/Librarians	---------	---------
Programmers	---------	---------
Programmer/Librarians	---------	---------
Machine Operators	---------	---------

What staff resources (in man years) does your library employ in its present automation programme and what increase may be anticipated in five years?

	At Present	In 5 years
Systems Analysts	---------	---------
Systems Analyst/Librarians	---------	---------
Programmers	---------	---------
Programmer/Librarians	---------	---------
Machine Operators	---------	---------
Clerical	---------	---------
Other (specify)	---------	---------

4. Financial Arrangements

a) What percentage of the following costs are budgeted and charged to the library:-

	Percent
Development costs (feasibility studies & trial runs etc.)	-----------
Programming costs	-----------
Operating costs (machine time)	-----------

b) To what extent and by what method are benefits of the automation programme measured in terms of costs and service?

5. General

a) In what way might each of your library activities be greatly facilitated by co-operative arrangements such as:-

i) Jointly operated local, regional, and national centres where combined activities could clearly be more economically and effectively operated or automated:--

----

----

ii) The development of communication networks:-----------

----

iii) Other arrrangements--------------------------------

----

b) What co-operative arrangements are now being used to improve your library operations?

----

b) What co-operative arrangements are now being used to improve your library operations?

----

c) What other comments do you wish to make on the problems of automation of library activities? If possible will you categorize these comments under the above headings (1) Studies (2) Equipment (3) Manpower (4) Financial Arrangements and (5) General

----

PART II

DATA ON SPECIFIC APPLICATION

(Please Use a Separate Form for Each Application)

LIBRARY:- ______________________________ Date: __________

APPLICATION: Serials ____________ Circulation ____________

or Other (Specify) ______________________________

____

		Estimated Date Beginning	Estimated Date Completed
1.	Status of Application:		
	Systems Analysis	________	________
	Programming	________	________
	Implementation	________	________

2. Operational Status: Fully operating ____________

partly operating ____________ under revision ____________

other (specify) ______________________________

3. Equipment Used for This Application

Central processor: (Manufacturer, name, number) ____________

Card reader: (type and number) ____________

Card punch: (type and number) ____________

Paper tape reader: (type and number of channels) ____________

Paper tape punch: (" " " " ") ____________

Magnetic tape units: (type and number) ____________

Disk storage: (type and capacity) ____________

Other external storage (specify) ____________ partly operating__________ under revision__________

other (specify)__________

3. Equipment Used for This Application

Central processor: (Manufacturer, name, number)__________

Card reader: (type and number)__________

Card punch: (type and number)__________

Paper tape reader: (type and number of channels)__________

Paper tape punch: (" " " " ")__________

Magnetic tape units: (type and number)__________

Disk storage: (type and capacity)__________

Other external storage (specify)__________

Line printer: (type and number of printable characters)__________

____

Other input-output devices (specify)__________

____

____

4. In which language are the programs written?__________

____

5. Programming done by:- a) Library staff__________ b) other sources (Specify)__________

6. Memory used (bytes, words, characters)

____

Association of Universities and Colleges of Canada

Committee on Library Automation

Minority Report

by Ritvars Bregzis

As I **review the developments**, trends and issues covered by the deliberations **of the** AUCC Committee on Library Automation the following argument and **a corresponding** recommendation emerge.

Canadian research libraries, in order to realize the benefits of automation, must certainly work together to establish and maintain a certain level of standardization and compatibility. The library community owes it to itself to participate in the work towards proper standards, which will be compatible nationally and internationally. The National Library clearly has a leading role to play in this effort. These points are obvious and are agreed upon by the whole AUCC Committee on Library Automation. However, I cannot agree with the Committee's Report on the things which need to be standardized, or on the way it would seek to develop standards.

It is important that the consideration of library automation should cover present practices and immediate possibilities, but even more important that it provide a systematic overview of the entire range of implications and longer term possibilities of bibliographic service.

Effective access to all potentially important information sources is the key to the success of modern research. If co-operation in the building and use of library resources is desirable, and if modern technology is accepted as a constructive element in such co-operation, then the most important task of the new technology is to create and maintain ready access to the agregate resources of research libraries. A new union catalogue, commanding more detail and precision than ordinary union catalogues do, is the single most vital objective of co-operative library automation at this time.

In such access scheme two factors are of primary significance: the information about the research resources of libraries (i.e., bibliographic data) and the formal definition and interpretation of these data in a manner which can guarantee interchangeability between individual libraries (i.e., standardization). In standardization, the critical issue has nothing to do with the mechanisms by which locally, at any level, the data are now being handled. The critical issue is the range of implications and longer term possibilities of bibliographic service.

Effective access to all potentially important information sources is the key to the success of modern research. If co-operation in the building and use of library resources is desirable, and if modern technology is accepted as a constructive element in such co-operation, then the most important task of the new technology is to create and maintain ready access to the agregate resources of research libraries. A new union catalogue, commanding more detail and precision than ordinary union catalogues do, is the single most vital objective of co-operative library automation at this time.

In such access scheme two factors are of primary significance: the information about the research resources of libraries (i.e., bibliographic data) and the formal definition and interpretation of these data in a manner which can guarantee interchangeability between individual libraries (i.e., standardization). In standardization, the critical issue has nothing to do with the mechanisms by which locally, at any level, the data are now being handled. The critical issue is the formulation of norms and definitions which can provide effective translatability between various and variant local situations without loss or distortion of the specific characteristics of bibliographic data.

It is most important, therefore for Canadian university and other research libraries to focus their attention on two concerns:

1. the establishment of a nation-wide (and, indeed international) scheme for a pool of enhanced bibliographic data in machine readable form; and
2. adherence to and maintenance of international standards which will facilitate compatible transfer of bibliographic data from institution to institution with a minimum of difficulty.

These are our most vital concerns at present. Before they are accomplished, an attempt to produce a number of packaged computer applications (as recommended in the Committee Report) would be useless in the short run, and in the long run could be seriously counter-productive.

Toronto
November 27, 1969